United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Idaho Soil Conservation
Commission and
University of Idaho,
College of Agriculture

Soil Survey of Minidoka Area, Idaho, Parts of Minidoka, Blaine, and Lincoln Counties

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

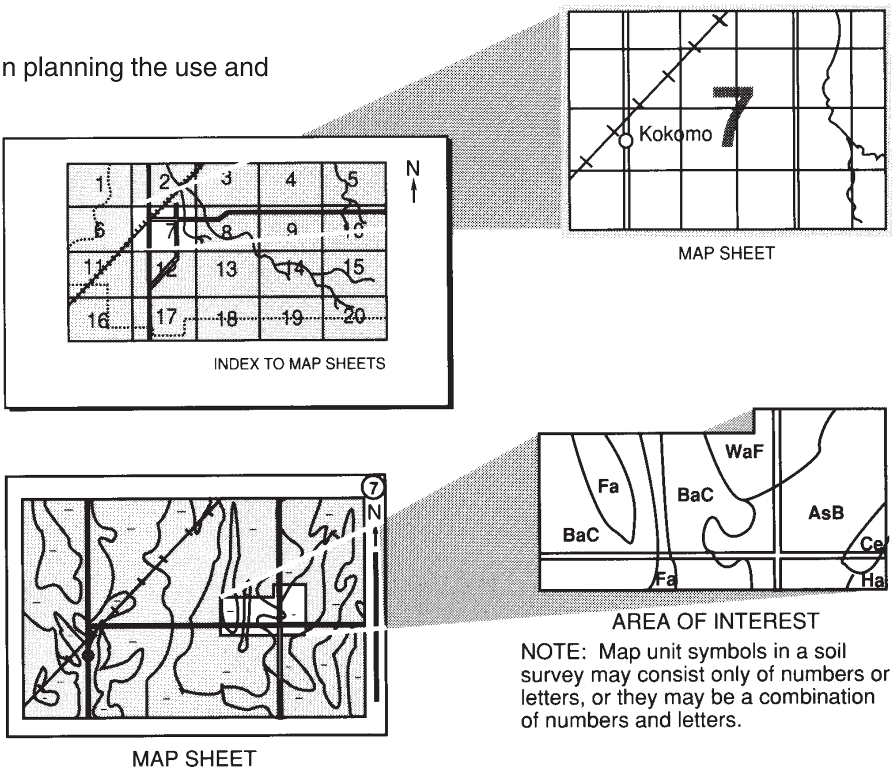
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1998. Soil names and descriptions were approved in 1999. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1999. This survey was made cooperatively by the Natural Resources Conservation Service and the Idaho Soil Conservation Commission and University of Idaho, College of Agriculture. The survey is part of the technical assistance furnished to the Minidoka Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Since the publication of this survey, more information on soil properties may have been collected, new interpretations may have been developed, or existing interpretive criteria may have been modified. The most current soil information and interpretations for this survey are in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The soil maps in this publication are in digital form. The digitizing of the maps was completed in accordance with the Soil Survey Geographic (SSURGO) database standards. The digital SSURGO-certified maps are considered the official maps for the survey area and are part of the FOTG at the local field office of the Natural Resources Conservation Service.

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Cover: Aerial view of irrigated cropland, the dominant land use in the survey area.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Richard Sims
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Minidoka Area, Idaho, Parts of Minidoka, Blaine, and Lincoln Counties

By Dal Ames, Natural Resources Conservation Service

Fieldwork by Dal Ames, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Idaho Soil Conservation Commission and University of Idaho, College of Agriculture

MINIDOKA AREA is in south-central Idaho (fig. 1). It includes private, State, and Federal land. The Federal land is administrated by the Bureau of Land Management, the Bureau of Reclamation, and the Fish and Wildlife Service. The survey area comprises about 500 square miles, of which 269,200 acres is in Minidoka County, 33,800 acres is in Blaine County, and 20,000 acres is in Lincoln County. In 1999, the population of the city of Rupert, the county seat of Minidoka County, was about 5,200.

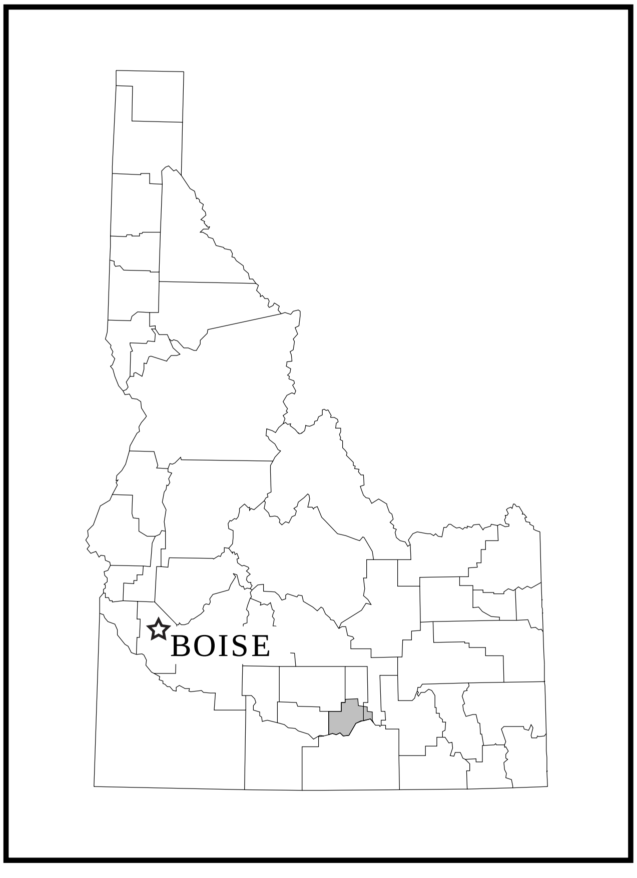

Figure 1.—Location of Minidoka Area in Idaho.

The survey area is in the Snake River Plain of the Columbia Plateau province. It is bounded on the south by Lake Walcott and the Snake River. The southern one-fourth of the area is comprised of nearly level and gently sloping alluvial terraces and flood plains that formed in recent alluvial and lacustrine material derived from Bonneville Flood deposits. Nearly level to moderately sloping upland terraces that are underlain by Pleistocene and Recent basalt flows make up the remaining three-fourths of the area. Interspersed on the uplands are shield volcanoes and volcanic vents.

The survey area is drained by shallow, intermittent drainageways that empty into the Snake River. The elevation ranges from about 4,000 feet near the Snake River to nearly 5,000 feet on Kimama Butte, which is at about the center of the western edge of the survey area.

This soil survey updates the survey of Minidoka Area, Idaho, Parts of Minidoka, Blaine, and Lincoln Counties, published in 1975 (USDA, 1975). An older soil survey, Minidoka Area, Idaho, was completed in 1923 (USDA, 1923).

General Nature of the Survey Area

This section gives general information about the survey area. It discusses history and development, water supply, agriculture, and climate.

History and Development

Nomadic Indians frequented the area from about 12,000 B.C. until settlement of the area by white people. Traveling in small family groups, the Indians camped along the Snake River in fall to hunt, fish, and find shelter for winter. In spring, they migrated to uplands outside the survey area. In 1811, the Pacific Fur Company ventured into the area. American and French-Canadian trappers frequented the area in the 1820's and 1830's and established roads that were later used by emigrants to Oregon looking for a shorter route across the Snake River Plain.

Settlement of the area began in 1883 with the construction of a railroad that connected to the Union Pacific Railroad. Kimama and Minidoka supply depots were established along the railroad, which also aided in development of the area. Farmers began to irrigate small tracts of land along the Snake River. The Reclamation Service then designed the Minidoka Project, which was completed in 1907. It included construction of an earthen-filled dam on the Snake River with accompanying delivery canals and thus opened more of the area to irrigated farming. The towns of Rupert, Heyburn, and Acequia were designed and platted. In the 1950's, a deep-well irrigation project managed by the A & B Irrigation District resulted in additional irrigated farmland. Since then, private deep wells have been used to irrigate other areas. The towns of Rupert and Heyburn are the main shopping and industrial centers in the area. Other smaller towns serve as secondary shopping centers for their immediate areas.

Water Supply

Irrigation water originates from seasonal runoff and the Snake River Plain aquifer. Water stored in Jackson and Walcott Lakes and in American Falls and Palisades Reservoirs is managed by the Minidoka Irrigation District. The A & B Irrigation District and deep private wells supply irrigation water to a majority of the irrigated farmland.

Wells in the Snake River Plain aquifer supply water for domestic, municipal, and industrial uses. Stock water on the rangeland is obtained from streams, springs, and wells. Wells in the northern part of the survey area generally are deeper than those close to the Snake River (Brennan and others, 1997).

Agriculture

Prior to development of irrigated farmland, scattered cattle ranchers along the Snake River used the surrounding rangeland for grazing in winter and spring. Dry farming was attempted on the benchland along the Snake River, and a few crops were grown. Because of unfavorable climatic conditions, however, this practice generally was not feasible.

The sparse rainfall in the survey area makes irrigation essential for successful farming. The Reclamation Act of 1902 provided funds for construction of reservoirs, canals, and irrigation-control structures. By 1907, water was being delivered to the first irrigated farmland. Presently, irrigation water is applied by surface and sprinkler systems.

The main crops grown are small grain, potatoes, sugar beets, and alfalfa hay. Other important crops are dry beans, corn for silage, dry peas, onions, and alfalfa for seed. Some acreage is used for irrigated pasture. The total number of acres used for each crop varies as crop prices fluctuate. Commercial fertilizers and improved varieties have resulted in increased yields.

Some farms have small cow-calf, beef cow, sheep, hog, or dairy cow operations. Livestock enterprises provide about 30 percent of the agricultural income in the survey area.

The Blaine Soil Conservation District was established in 1954, the Minidoka Soil and Water Conservation District was established in 1955, and the Wood River Soil Conservation District was established in 1943. These districts serve the area by helping to control water and wind erosion through efficient use of tillage and irrigation water and by promoting agricultural research to increase crop yields and improve rangeland conditions.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from data collected at the First Order station at Pocatello, Idaho.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Paul, Idaho, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 28.0 degrees F and the average daily minimum temperature is 18.5 degrees. The lowest temperature on record, which occurred at Paul on January 25, 1949, was -31 degrees. In summer, the average temperature is 67.0 degrees and the average daily maximum temperature is 83.8 degrees. The highest temperature, which occurred at Paul on August 9, 1990, was 104 degrees.

Growing degree days are shown in table 3. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 9.62 inches. Of this, about 3.6 inches, or 38 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 2.43 inches at Paul on May 13, 1957. Thunderstorms occur on about 22 days each year, and most occur in June through August.

The average seasonal snowfall is 19.1 inches. The greatest snow depth at any one time during the period of record was 24 inches recorded on February 10, 1949. On an average, 19 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 12 inches recorded on December 24, 1951.

The average relative humidity in midafternoon is about 42 percent. Humidity is higher at night, and the average at dawn is about 72 percent. The sun shines 80 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the west. The average windspeed is highest, 10 to 11 miles per hour, in November through June.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. The soil survey of Minidoka Area, Idaho, Parts of Minidoka, Blaine, and Lincoln Counties, published in 1975, was used as a guide in updating this survey. Depending on the variability and complexity of the soil properties and the changes in land use and management, the soil map units in the older survey were either combined or were redefined and redelineated for this survey.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile (USDA, 1999). After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses.

Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Dominantly level to gently sloping soils that are shallow and moderately deep over a hardpan, shallow and moderately deep over bedrock, and very deep, and formed in alluvium; on terraces, hillslopes, and toeslopes

Number of map units: 4
Percentage of survey area: 75 percent

1. Portneuf-Sluka

Well drained soils that are very deep and are moderately deep over a hardpan and have slopes of dominantly 1 to 4 percent

Percentage of survey area: 35 percent
Elevation: 4,150 to 4,450 feet
Frost-free period: 120 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Bahem, Barrymore, Dolman, Hynes, Minidoka, Pocatello, Rad, and Starbuck soils
Percentage of minor components: 11 percent
Present uses: Irrigated cropland, and rangeland

2. Power-McCain-Paulville

Well drained soils that are very deep and are moderately deep over bedrock and have slopes of dominantly 1 to 4 percent

Percentage of survey area: 18 percent
Elevation: 4,150 to 4,800 feet
Frost-free period: 120 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces and toeslopes
Minor components: Hoosegow, McPan, Owsel, and Unkee soils and Torriorthents
Percentage of minor components: 8 percent
Present uses: Irrigated cropland, and rangeland

3. Minveno

Well drained soils that are shallow over a hardpan and have slopes of dominantly 1 to 6 percent

Percentage of survey area: 16 percent
Elevation: 4,180 to 4,800 feet
Frost-free period: 110 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces and hillslopes
Minor components: McPan, Paulville, Power, Sluka, and Taunton soils
Percentage of minor components: 10 percent
Present uses: Irrigated cropland, and rangeland

4. Starbuck-McPan

Well drained soils that are shallow over bedrock and moderately deep over a hardpan and have slopes of dominantly 2 to 8 percent

Percentage of survey area: 6 percent
Elevation: 4,300 to 4,400 feet

Frost-free period: 120 to 130 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Paulville and Taunton soils and Rock outcrop
Percentage of minor components: 10 percent
Present use: Rangeland

Dominantly level to gently sloping soils that are moderately deep over bedrock and very deep and formed in Bonneville Flood deposits; on terraces

Number of map units: 3
Percentage of survey area: 16 percent

5. Vining-Kecko-Rock outcrop

Well drained soils that are moderately deep over bedrock and very deep and have slopes of dominantly 1 to 6 percent

Percentage of survey area: 8 percent
Elevation: 4,150 to 4,300 feet
Frost-free period: 120 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Kecko, Quincy, Taunton, and Unkee soils
Percentage of minor components: 10 percent
Present uses: Rangeland and irrigated cropland

6. Tindahay

Somewhat excessively drained soils that are very deep and have slopes of dominantly 0 to 1 percent

Percentage of survey area: 4 percent
Elevation: 4,145 to 4,160 feet
Frost-free period: 130 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Arloval, Decker, Quincy, and Wodskow soils
Percentage of minor components: 10 percent
Present use: Irrigated cropland

7. Woozle

Well drained soils that are very deep and have slopes of dominantly 0 to 1 percent

Percentage of survey area: 4 percent
Elevation: 4,140 to 4,250 feet
Frost-free period: 130 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Eoyote, Hynes, Unkee, and Wodskow soils
Percentage of minor components: 10 percent
Present use: Irrigated cropland

Dominantly level and nearly level, very deep soils that are wet and formed in alluvium; on terraces

Number of map units: 1
Percentage of survey area: 9 percent

8. Wodskow-Decker-Schodson

Somewhat poorly drained soils that are very deep and have slopes of dominantly 0 to 1 percent

Percentage of survey area: 9 percent
Elevation: 4,145 to 4,160 feet
Frost-free period: 130 to 140 days
Average annual precipitation: 8 to 10 inches
Position on landscape: Terraces
Minor components: Abo, Arloval, and Garsox soils
Percentage of minor components: 10 percent
Present use: Irrigated cropland

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Bahem silt loam, 1 to 4 percent slopes, is a phase of the Bahem series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Barrymore-Starbuck complex, 1 to 4 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Abo sandy loam, 0 to 2 percent slopes

Composition

Abo and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,155 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Abo Soil

Typical profile:
0 to 9 inches—brown sandy loam
9 to 15 inches—brown clay loam
15 to 19 inches—pale brown clay loam
19 to 24 inches—light gray silt loam
24 to 34 inches—light gray loam
34 to 45 inches—very pale brown loam
45 to 51 inches—very pale brown loam
51 to 60 inches—sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: 6 to 8 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 24 to 50 inches
Salinity: Very slight or slight throughout

Minor Components

- Abo loam (3 percent)
- Decker soils (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Water table, permeability, salinity, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the high water table, moderately slow permeability, very slight or slight salinity, and moderate hazard of wind erosion.
- The high water table can be lowered by installing subsurface drainage systems.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Salt-tolerant crops should be grown.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6e, nonirrigated

2—Abo loam, 0 to 2 percent slopes

Composition

Abo and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,155 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Abo Soil

Typical profile:
0 to 9 inches—brown loam
9 to 15 inches—brown clay loam
15 to 19 inches—pale brown clay loam
19 to 24 inches—light gray silt loam
24 to 34 inches—light gray loam
34 to 45 inches—very pale brown loam
45 to 51 inches—very pale brown loam
51 to 60 inches—sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Available water capacity: 6.5 to 8.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Depth to water table: 24 to 50 inches
Salinity: Very slight or slight throughout

Minor Components

- Decker soils (2 percent)
- Garsox soils (2 percent)
- Woozle soils (1 percent)

Use and Management

Major uses: Irrigated cropland, pastureland
Major management factors: Water table, permeability, salinity
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the high water table, moderately slow permeability, and very slight or slight salinity.
- The high water table can be lowered by installing subsurface drainage systems.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Salt-tolerant crops should be grown.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6c, nonirrigated

3—Arloval loamy fine sand, 0 to 2 percent slopes

Composition

Arloval and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Arloval Soil

Typical profile:
0 to 10 inches—grayish brown loamy fine sand
10 to 23 inches—light brownish gray loamy fine sand
23 to 35 inches—light brownish gray loamy fine sand
35 to 52 inches—light brownish gray loamy fine sand
52 to 60 inches—light brownish gray loamy sand
Depth class: Very deep
Drainage class: Poorly drained
Permeability: Rapid
Available water capacity: 5.0 to 6.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Depth to water table: 10 to 50 inches

Minor Components

- Decker soils (3 percent)
- Schodson soils (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the rapid permeability, high water table, and severe hazard of wind erosion.
- Because of the rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3e, irrigated, and 7e, nonirrigated

4—Arloval sandy loam, 0 to 2 percent slopes

Composition

Arloval and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,160 feet
Average annual precipitation: 8 to 10 inches

Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Arloval Soil

Typical profile:
0 to 10 inches—grayish brown sandy loam
10 to 23 inches—light brownish gray loamy fine sand
23 to 35 inches—light brownish gray loamy fine sand
35 to 52 inches—light brownish gray loamy fine sand
52 to 60 inches—light brownish gray loamy sand
Depth class: Very deep
Drainage class: Poorly drained
Permeability: Rapid
Available water capacity: 5.6 to 6.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 10 to 50 inches

Minor Components

- Schodson soils (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the rapid permeability, high water table, and moderate hazard of wind erosion.
- Because of the rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6e, nonirrigated

5—Bahem silt loam, 1 to 4 percent slopes

Composition

Bahem and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,260 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Bahem Soil

Typical profile:
0 to 10 inches—pale brown silt loam
10 to 16 inches—pale brown silt loam
16 to 38 inches—light gray silt loam
38 to 47 inches—very pale brown silt loam
47 to 60 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 9.5 to 11.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Sluka soils on higher terraces (5 percent)

Use and Management

Major uses: Irrigated cropland (fig. 2, p. 47), rangeland
Major management factors: None

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:

- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

6—Bahem silt loam, 4 to 8 percent slopes

Composition

Bahem and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,270 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Bahem Soil

Typical profile:
0 to 10 inches—pale brown silt loam
10 to 16 inches—pale brown silt loam
16 to 38 inches—light gray silt loam
38 to 47 inches—very pale brown silt loam
47 to 60 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 9.5 to 11.0 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Sluka soils on lower terraces (6 percent)
- Rad soils on lower terraces (3 percent)
- Rock outcrop (1 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Slope, precipitation, hazard of water erosion

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by slope and the moderate hazard of water erosion.
- Regulating irrigation water helps to control runoff and erosion.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

7—Bahem silt loam, 8 to 12 percent slopes

Composition

Bahem and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,150 to 4,280 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Bahem Soil

Typical profile:
0 to 10 inches—pale brown silt loam
10 to 16 inches—pale brown silt loam
16 to 38 inches—light gray silt loam
38 to 47 inches—very pale brown silt loam
47 to 60 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 9.5 to 11.0 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Rock outcrop (5 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Precipitation, slope, hazard of water erosion

Irrigated cropland

General management considerations:
- Because areas of this soil are long and narrow, management is dependent on the major uses of the less sloping, wider surrounding areas.

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and the moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 4e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

8—Barrymore-Starbuck complex, 1 to 4 percent slopes

Composition

Barrymore and similar soils—50 percent
Starbuck and similar soils—30 percent
Minor components—20 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Barrymore Soil

Typical profile:
0 to 5 inches—brown silt loam
5 to 12 inches—yellowish brown silt loam
12 to 17 inches—pale brown silt loam
17 to 23 inches—light gray silt loam
23 inches—bedrock
Depth class: Moderately deep to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 5.0 to 8.5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the Starbuck Soil

Typical profile:
0 to 5 inches—pale brown silt loam
5 to 15 inches—light yellowish brown silt loam
15 inches—bedrock
Depth class: Shallow to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 2.5 to 3.5 inches
Potential rooting depth: 12 to 20 inches
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Dolman soils on lower terraces (8 percent)
- Soils that are similar to the Starbuck soil but are very shallow to bedrock and are on higher terraces (6 percent)
- Rock outcrop (6 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Barrymore and Starbuck—precipitation; Starbuck—depth to bedrock, available water capacity

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to these soils.
- Production of irrigated crops is limited by the shallow rooting depth and low available water capacity of the Starbuck soil.

Rangeland

Dominant vegetation in climax plant community: Barrymore—Thurber needlegrass, Wyoming big sagebrush; Starbuck—bluebunch wheatgrass, Wyoming big sagebrush
General management considerations:
- Forage production is limited by the low precipitation and by the shallow rooting depth and low available water capacity of the Starbuck soil.
- Seeding is limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when

precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: Barrymore—3s, irrigated, and 6s, nonirrigated; Starbuck—4e, irrigated, and 6e, nonirrigated
Ecological site: Barrymore—Loamy 8 to 10 PZ, 011AY001ID; Starbuck—Shallow Loamy 8 to 12 PZ, 011AY002ID

9—Decker fine sandy loam, 0 to 2 percent slopes

Composition

Decker and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Decker Soil

Typical profile:
0 to 10 inches—pale brown fine sandy loam
10 to 15 inches—pale brown loam
15 to 23 inches—very pale brown loam
23 to 29 inches—very pale brown loam
29 to 35 inches—light gray sandy loam
35 to 51 inches—light gray loam
51 to 65 inches—light brownish gray and very pale brown, stratified sand to fine sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: 7 to 8 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 30 to 50 inches

Minor Components

- Abo soils (3 percent)
- Wodskow soils (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Water table, hazard of wind erosion

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the high water table and moderate hazard of wind erosion.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6e, nonirrigated

10—Decker loam, 0 to 2 percent slopes

Composition

Decker and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,155 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Decker Soil

Typical profile:
0 to 10 inches—pale brown loam
10 to 15 inches—pale brown loam
15 to 23 inches—very pale brown loam
23 to 29 inches—very pale brown loam
29 to 35 inches—light gray sandy loam
35 to 51 inches—light gray loam
51 to 65 inches—light brownish gray and very pale brown, stratified sand to fine sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: 7.5 to 8.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Depth to water table: 30 to 50 inches

Minor Components

- Abo soils (3 percent)

- Decker soils, saline (1 percent)
- Garsox soils (1 percent)

Use and Management

Major use: Irrigated cropland
Major management factor: Water table
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the high water table.
- The high water table can be lowered by installing subsurface drainage systems.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6c, nonirrigated

11—Decker loam, saline, 0 to 2 percent slopes

Composition

Decker and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,140 to 4,150 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Decker Soil

Typical profile:
0 to 10 inches—pale brown loam
10 to 15 inches—pale brown loam
15 to 23 inches—very pale brown loam
23 to 29 inches—very pale brown loam
29 to 35 inches—light gray sandy loam
35 to 51 inches—light gray loam
51 to 65 inches—light brownish gray and very pale brown, stratified sand to fine sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Available water capacity: 6.5 to 8.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Depth to water table: 30 to 50 inches
Salinity: Slight or moderate in the surface layer

Minor Components

- Abo soils (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, salinity
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the high water table and salinity.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderate permeability, high water table, and slight or moderate salinity.
- Because of the moderate permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- Salt-tolerant crops should be grown.

Interpretive Groups

Land capability classification: 3w, irrigated, and 7s, nonirrigated

12—Dolman silt loam, 1 to 4 percent slopes

Composition

Dolman and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,350 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Dolman Soil

Typical profile:
0 to 4 inches—yellowish brown silt loam
4 to 14 inches—yellowish brown silt loam
14 to 21 inches—light gray silt loam
21 to 38 inches—hardpan
38 to 60 inches—very pale brown very fine sand
Depth class: Moderately deep to a hardpan

Drainage class: Well drained
Permeability: Moderate
Available water capacity: 4.0 to 6.5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- McPan soils on higher terraces (4 percent)
- Owsel soils on higher terraces (3 percent)
- Power soils on higher terraces (2 percent)
- Rock outcrop (1 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factor: Precipitation

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass and Wyoming big sagebrush
General management considerations:

- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.

Interpretive Groups

Land capability classification: 3s, irrigated, and 6s, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

13—Eoyote fine sandy loam, 0 to 2 percent slopes

Composition

Eoyote and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,140 to 4,175 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Eoyote Soil

Typical profile:
0 to 8 inches—pale brown fine sandy loam
8 to 18 inches—pale brown fine sandy loam
18 to 36 inches—brown fine sandy loam
36 to 60 inches—pale brown very fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 8.0 to 9.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- Quincy soils (3 percent)
- Woozle soils on lower terraces (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated

14—Garsox silt loam, 0 to 2 percent slopes

Composition

Garsox and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,140 to 4,150 feet

Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Garsox Soil

Typical profile:
0 to 2 inches—light brownish gray silt loam
2 to 5 inches—gray clay loam
5 to 10 inches—light brownish gray clay loam
10 to 16 inches—very pale brown loam
16 to 25 inches—light gray sandy loam
25 to 36 inches—light gray loamy fine sand
36 to 44 inches—very pale brown fine sandy loam
44 to 60 inches—light gray loamy fine sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Available water capacity: 3.5 to 4.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Depth to water table: 24 to 45 inches
Salinity: Slight or moderate throughout
Sodicity: Moderate in the subsoil

Minor Components

- Abo soils (3 percent)
- Decker soils (2 percent)

Use and Management

Major use: Pastureland
Major management factors: Water table, salinity, sodicity
General management considerations:
- Most climatically adapted grasses and legumes can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of forage is limited by the high water table, slight or moderate salinity, and moderate sodicity.
- The high water table can be lowered by installing subsurface drainage systems.
- Salt-tolerant grasses and legumes should be grown.

Interpretive Groups

Land capability classification: 4s, irrigated, and 6s, nonirrigated

15—Hoosegow loam, 6 to 25 percent slopes

Composition

Hoosegow and similar soils—85 percent
Minor components—15 percent

Setting

Position on landscape: Hills
Elevation: 4,200 to 5,075 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 46 to 48 degrees F
Frost-free season: 110 to 140 days

Characteristics of the Hoosegow Soil

Typical profile:
0 to 4 inches—yellowish brown loam
4 to 9 inches—yellowish brown loam
9 to 30 inches—yellowish brown loam
30 to 48 inches—light yellowish brown loam
48 to 60 inches—light yellowish brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 9.5 to 11.5 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- McPan soils on footslopes (5 percent)
- Minveno soils on summits (5 percent)
- Soils that are shallow to bedrock and are on footslopes (3 percent)
- Rock outcrop (2 percent)

Use and Management

Major use: Rangeland
Major management factors: Precipitation, slope, hazard of water erosion
Dominant vegetation in climax plant community: Basin wildrye, basin big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation, slope, and moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 6e, nonirrigated
Ecological site: Loamy Bottom 8 to 14 PZ, 011AY008ID

16—Hynes silt loam, 0 to 2 percent slopes

Composition

Hynes and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,180 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Hynes Soil

Typical profile:
0 to 4 inches—brown silt loam
4 to 16 inches—pale brown silt loam
16 to 30 inches—very pale brown silt loam
30 to 41 inches—very pale brown silt loam
41 to 53 inches—very pale brown silty clay loam
53 to 64 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: 9 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Rad soils on lower terraces (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, weak discontinuous cementation
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the slow permeability and weak discontinuous silica cementation.
- Because of the slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 12 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.

Interpretive Groups

Land capability classification: 2c, irrigated, and 6c, nonirrigated

17—Kecko fine sandy loam, 1 to 4 percent slopes

Composition

Kecko and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,140 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Kecko Soil

Typical profile:
0 to 4 inches—brown fine sandy loam
4 to 9 inches—brown fine sandy loam
9 to 21 inches—brown loam
21 to 26 inches—pale brown very fine sandy loam
26 to 42 inches—very pale brown very fine sandy loam
42 to 62 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 9 to 10 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- Quincy soils on higher terraces (5 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Permeability, hazard of wind erosion, precipitation

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Rangeland

Dominant vegetation in climax plant community: Needleandthread, Indian ricegrass, basin big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and the moderate hazard of wind erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6e, nonirrigated
Ecological site: Sand 8 to 12 PZ, 011AY014ID

18—Minveno silt loam, 1 to 8 percent slopes

Composition

Minveno and similar soils—90 percent
Minor components—10 percent

Setting

Positions on landscape: Terraces, hillslopes
Elevation: 4,180 to 4,800 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 46 to 50 degrees F
Frost-free season: 110 to 140 days

Characteristics of the Minveno Soil

Typical profile:
0 to 2 inches—pale brown silt loam
2 to 11 inches—pale brown silt loam
11 to 19 inches—very pale brown silt loam
19 to 37 inches—white, lime- and silica-cemented hardpan
37 inches—bedrock
Depth class: Shallow to a hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 2 to 4 inches
Potential rooting depth: 10 to 20 inches
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Taunton soils on lower terraces (3 percent)
- McPan soils on lower terraces (2 percent)
- Paulville soils on lower terraces (2 percent)
- Power soils on lower terraces (1 percent)
- Sluka soils on lower terraces (1 percent)
- Rock outcrop (1 percent)

Use and Management

Major uses: Irrigated cropland (fig. 3, p. 48), rangeland
Major management factors: Precipitation, depth to hardpan, available water capacity, hazard of water erosion, slope

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the shallow rooting depth, low available water capacity, slope, and moderate hazard of water erosion.
- Regulating irrigation water helps to control runoff and erosion.

Rangeland

Dominant vegetation in climax plant community: Bluebunch wheatgrass, Wyoming big sagebrush
General management considerations:
- Forage production is limited by the low precipitation, shallow rooting depth, and low available water capacity.
- Seeding is limited by the low precipitation and moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 4e, irrigated, and 6e, nonirrigated
Ecological site: Shallow Loamy 8 to 12 PZ, 011AY002ID

19—Owsel silt loam, 1 to 4 percent slopes

Composition

Owsel and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,180 to 4,200 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Owsel Soil

Typical profile:
0 to 5 inches—pale brown silt loam
5 to 9 inches—yellowish brown silt loam
9 to 15 inches—light yellowish brown silty clay loam
15 to 28 inches—very pale brown silt loam
28 to 37 inches—very pale brown silt loam
37 to 54 inches—very pale brown silt loam
54 to 68 inches—pale brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 8.5 to 10.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Portneuf soils on lower terraces (3 percent)
- Rad soils on lower terraces (3 percent)
- Dolman soils on higher terraces (3 percent)
- Minveno soils on higher terraces (1 percent)

Use and Management

Major use: Rangeland
Major management factor: Precipitation
Dominant vegetation in climax plant community: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated
Ecological site: Loamy 8 to 12 PZ, 011AY004ID

20—Paulville-McPan complex, 1 to 4 percent slopes

Composition

Paulville and similar soils—50 percent
McPan and similar soils—30 percent
Minor components—20 percent

Setting

Position on landscape: Paulville—concave positions on terraces and toeslopes; McPan—convex positions on terraces and toeslopes
Elevation: 4,300 to 4,700 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Paulville Soil

Typical profile:
0 to 6 inches—brown silt loam
6 to 16 inches—yellowish brown loam
16 to 31 inches—yellowish brown loam
31 to 60 inches—light gray silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 9.0 to 10.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the McPan Soil

Typical profile:
0 to 6 inches—brown loam
6 to 10 inches—yellowish brown silt loam
10 to 21 inches—yellowish brown silt loam
21 to 27 inches—very pale brown silt loam
27 to 28 inches—very pale brown, lime- and silica-cemented hardpan
28 inches—bedrock
Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 3.5 to 9.0 inches

Potential rooting depth: 20 to 39 inches
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Minveno soils on lower terraces (10 percent)
- Unkee soils on playas (5 percent)
- Soils that are similar to the McPan soil but are shallow to a hardpan and are in convex areas of terraces (3 percent)
- Rock outcrop (2 percent)

Use and Management

Major uses: Irrigated cropland (fig. 4, p. 49), rangeland
Major management factors: Precipitation, permeability

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to these soils.
- Production of irrigated crops is limited by the moderately slow permeability.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Rangeland

Dominant vegetation in climax plant community: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: Paulville—2e, irrigated, and 6e, nonirrigated; McPan—3e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 12 PZ, 011AY004ID

21—Pits, gravel

This unit consists of gravel, borrow, and cinder pits. These pits are open excavations where gravel, cinders, soil, and bedrock have been removed for construction uses. They are 2 to 20 feet deep or more. They are throughout the survey area at elevations of about 4,100 feet along the Snake River to about 5,000 feet on the higher buttes. The exposed material supports little, if any, vegetation. The land capability classification is 8.

22—Pocatello silt loam, 12 to 30 percent slopes

Composition

Pocatello and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,150 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Pocatello Soil

Typical profile:
0 to 4 inches—light brownish gray silt loam
4 to 16 inches—light gray silt loam
16 to 38 inches—light gray silt loam
38 to 66 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 7.5 to 10.5 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Rad soils on lower terraces (8 percent)
- Rock outcrop (2 percent)

Use and Management

Major use: Rangeland
Major management factors: Precipitation, hazard of water erosion
Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 6e, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

23—Portneuf silt loam, 0 to 1 percent slopes

Composition

Portneuf and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,300 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Portneuf Soil

Typical profile:
0 to 9 inches—pale brown silt loam
9 to 13 inches—pale brown silt loam
13 to 27 inches—very pale brown silt loam
27 to 42 inches—light gray silt loam
42 to 64 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 8 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Sluka soils (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, weak discontinuous cementation
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately slow permeability and weak discontinuous silica cementation.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 12 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.

Interpretive Groups

Land capability classification: 2c, irrigated, and 6c, nonirrigated

24—Portneuf silt loam, 1 to 4 percent slopes

Composition

Portneuf and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,340 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Portneuf Soil

Typical profile:
0 to 9 inches—pale brown silt loam
9 to 13 inches—pale brown silt loam
13 to 27 inches—very pale brown silt loam
27 to 42 inches—light gray silt loam
42 to 64 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 8 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Bahem soils (4 percent)
- Sluka soils (4 percent)
- Power soils on higher terraces (2 percent)

Use and Management

Major use: Irrigated cropland (fig. 5, p. 50)
Major management factors: Permeability, weak discontinuous cementation
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the

moderately slow permeability and weak discontinuous silica cementation.

- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 12 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated

25—Portneuf silt loam, 4 to 8 percent slopes

Composition

Portneuf and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,150 to 4,320 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Portneuf Soil

Typical profile:
0 to 9 inches—pale brown silt loam
9 to 13 inches—pale brown silt loam
13 to 27 inches—very pale brown silt loam
27 to 42 inches—light gray silt loam
42 to 64 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 8 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Bahem soils (2 percent)
- Sluka soils on lower terraces (2 percent)
- Rock outcrop (1 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, weak discontinuous cementation, slope, hazard of water erosion

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the moderately slow permeability, weak discontinuous silica cementation, slope, and moderate hazard of water erosion.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 12 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.
- Regulating irrigation water helps to control runoff and erosion.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6e, nonirrigated

26—Power silt loam, 1 to 4 percent slopes

Composition

Power and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces, toeslopes
Elevation: 4,160 to 4,550 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Power Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 17 inches—brown silt loam
17 to 31 inches—pale brown silt loam
31 to 54 inches—pale brown silt loam
54 to 61 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- McPan soils (3 percent)
- McCain soils (2 percent)
- Minveno soils on higher terraces (2 percent)
- Rad soils (2 percent)
- Rock outcrop (1 percent)

Use and Management

Major use: Irrigated cropland (fig. 6, p. 51)
Major management factor: Permeability
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately slow permeability.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated

27—Power silt loam, 4 to 8 percent slopes

Composition

Power and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Side slopes of terraces, toeslopes
Elevation: 4,450 to 4,550 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 130 days

Characteristics of the Power Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 17 inches—brown silt loam
17 to 31 inches—pale brown silt loam
31 to 54 inches—pale brown silt loam
54 to 61 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- McCain soils (8 percent)
- Rock outcrop (2 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Precipitation, permeability, slope, hazard of water erosion

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the moderately slow permeability, slope, and moderate hazard of water erosion.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Regulating irrigation water helps to control runoff and erosion.

Rangeland

Dominant vegetation in climax plant community: Bluebunch wheatgrass, basin big sagebrush
General management considerations:

- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 12 PZ, 011AY009ID

28—Power silt loam, 8 to 12 percent slopes

Composition

Power and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,450 to 4,800 feet

Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 130 days

Characteristics of the Power Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 17 inches—brown silt loam
17 to 31 inches—pale brown silt loam
31 to 54 inches—pale brown silt loam
54 to 61 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Soils that are shallow to a hardpan and are on toeslopes (3 percent)
- Rock outcrop (2 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Precipitation, permeability, slope, hazard of water erosion

Rangeland

Dominant vegetation in climax plant community: Bluebunch wheatgrass, basin big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Because of the risk of irrigation-induced erosion, sprinkler systems are recommended.
- Production of crops is limited by the slope, moderately slow permeability, and moderate hazard of water erosion.
- Regulating irrigation water helps to control runoff and erosion.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Interpretive Groups

Land capability classification: 4e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 12 PZ, 011AY009ID

29—Power-McCain complex, 1 to 6 percent slopes

Composition

Power and similar soils—50 percent
McCain and similar soils—30 percent
Minor components—20 percent

Setting

Position on landscape: Power—concave areas of terraces and toeslopes; McCain—convex areas of terraces and toeslopes
Elevation: 4,200 to 4,650 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Power Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 17 inches—brown silt loam
17 to 31 inches—pale brown silt loam
31 to 54 inches—pale brown silt loam
54 to 61 inches—very pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the McCain Soil

Typical profile:
0 to 3 inches—pale brown silt loam
3 to 6 inches—yellowish brown silt loam
6 to 15 inches—yellowish brown silt loam
15 to 22 inches—pale brown silt loam
22 to 28 inches—very pale brown silt loam
28 inches—bedrock
Depth class: Moderately deep to bedrock
Drainage class: Well drained
Permeability: Moderately slow

Available water capacity: 4 to 5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Bahem soils on lower terraces (5 percent)
- Barrymore soils on lower terraces (4 percent)
- Portneuf soils on lower terraces (4 percent)
- Starbuck soils on lower terraces (3 percent)
- Unkee soils on playas (2 percent)
- Rock outcrop (2 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Precipitation, permeability

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to these soils.
- Production of irrigated crops is limited by the moderately slow permeability.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Rangeland

Dominant vegetation in climax plant community: Bluebunch wheatgrass, basin big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: Power—2e, irrigated, and 6e, nonirrigated; McCain—3e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 12 PZ, 011AY009ID

30—Quincy loamy sand, 1 to 8 percent slopes

Composition

Quincy and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,140 to 4,280 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Quincy Soil

Typical profile:
0 to 16 inches—brown loamy sand
16 to 36 inches—brown loamy sand
36 to 70 inches—pale brown loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: 5.0 to 5.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Minor Components

- Kecko soils on lower terraces (2 percent)
- Tindahay soils on lower terraces (2 percent)
- Vining soils on ridges (1 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Precipitation, permeability, hazard of wind erosion, available water capacity

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the rapid permeability and the severe hazard of wind erosion.
- Because of the rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Rangeland

Dominant vegetation in climax plant community: Indian ricegrass, needleandthread, basin big sagebrush

General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 3e, irrigated, and 7e, nonirrigated
Ecological site: Sand 8 to 12 PZ, 011AY014ID

31—Rad silt loam, 1 to 4 percent slopes

Composition

Rad and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,180 to 4,400 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Rad Soil

Typical profile:
0 to 5 inches—brown silt loam
5 to 16 inches—yellowish brown silt loam
16 to 24 inches—light gray silt loam
24 to 34 inches—very pale brown silt loam
34 to 62 inches—pale brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: 9 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Taunton soils on lower terraces (5 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Permeability, weak discontinuous cementation, precipitation

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the slow permeability and weak discontinuous silica cementation.
- Because of the slow permeability, the application of irrigation water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 15 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6c, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

32—Rad silt loam, 8 to 15 percent slopes

Composition

Rad and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,300 to 4,480 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 130 days

Characteristics of the Rad Soil

Typical profile:
0 to 5 inches—brown silt loam
5 to 16 inches—yellowish brown silt loam
16 to 24 inches—light gray silt loam
24 to 34 inches—very pale brown silt loam
34 to 62 inches—pale brown silt loam

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: 9 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Medium
Hazard of water erosion: Moderate

Minor Components

- Bahem soils (5 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Precipitation, hazard of water erosion, permeability, weak discontinuous cementation, slope

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:

- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and the moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Because of the risk of irrigation-induced erosion, sprinkler systems are recommended.
- Production of irrigated crops is limited by the moderate hazard of water erosion, slope, slow permeability, and weak discontinuous silica cementation.
- Regulating irrigation water helps to control runoff and erosion.
- Because of the slow permeability, the application water should be adjusted to the water intake rate.
- Roots are restricted below a depth of 12 to 30 inches because of the weak discontinuous silica cementation.
- Deep chiseling or ripping improves the rooting depth.

Interpretive Groups

Land capability classification: 4e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

33—Rock outcrop-Torriorthents complex, very steep

Composition

Rock outcrop—50 percent
Torriorthents—40 percent
Minor components—10 percent

Setting

Position on landscape: Breaks, side slopes of calderas
Elevation: 4,220 to 4,800 feet
Average annual precipitation: 9 to 10 inches
Average annual air temperature: 46 to 49 degrees F
Frost-free season: 110 to 140 days

Characteristics of the Rock Outcrop

Kind of rock: Exposed basalt
Description of areas: Very steep to perpendicular cliffs and rimrock that border lower valley terraces and rim caulderas with talus material that has separated from the rimrock deposited randomly downslope

Characteristics of the Torriorthents

Slope range: 40 to 75 percent
Example profile:
0 to 46 inches—light brownish gray fine sandy loam
46 to 60 inches—pale brown silt loam
Depth class: Shallow to very deep
Drainage class: Well drained and somewhat excessively drained
Permeability: Moderately slow to moderately rapid
Available water capacity: 7 to 11 inches
Potential rooting depth: 60 inches or more
Runoff: Rapid
Hazard of water erosion: Severe

Minor Components

- Hoosegow soils on toeslopes (5 percent)
- Soils that are dark-colored loam and are on north- and east-facing side slopes (5 percent)

Use and Management

Major use: Rangeland
Major management factors: Precipitation, slope, Rock outcrop, hazard of water erosion
Dominant vegetation in climax plant community: Torriorthents—bluebunch wheatgrass, Thurber needlegrass, big sagebrush
General management considerations:

- Forage production is limited by the low precipitation.

- Seeding is limited by the very steep slopes, areas of Rock outcrop, and severe hazard of water erosion.

Interpretive Groups

Land capability classification: 8, nonirrigated
Ecological site: Torriorthents—Stony Loam 10 to 12 PZ, 011AY011ID

34—Schodson loamy sand, 0 to 1 percent slopes

Composition

Schodson and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Schodson Soil

Typical profile:
0 to 9 inches—brown loamy sand
9 to 25 inches—brown sandy loam
25 to 32 inches—pale brown loamy coarse sand
32 to 43 inches—light brownish gray coarse sand
43 to 60 inches—gray coarse sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Available water capacity: 4 to 5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Depth to water table: 24 to 45 inches

Minor Components

- Arloval soils (4 percent)
- Wodskow soils (3 percent)
- Soils that are similar to the Schodson soil but are deep to sand or gravelly sand (2 percent)
- Soils that are similar to the Schodson soil but are moderately deep to gravelly sand (1 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, hazard of wind erosion

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability, high water table, and severe hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3e, irrigated, and 7e, nonirrigated

35—Schodson sandy loam, 0 to 1 percent slopes

Composition

Schodson and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Schodson Soil

Typical profile:
0 to 9 inches—brown sandy loam
9 to 25 inches—brown sandy loam
25 to 32 inches—pale brown loamy coarse sand
32 to 43 inches—light brownish gray coarse sand
43 to 60 inches—gray coarse sand
Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Available water capacity: 4.5 to 5.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 24 to 45 inches

Minor Components

- Arloval soils (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, hazard of wind erosion
General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability, moderate hazard of wind erosion, and high water table.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3w, irrigated, and 6s, nonirrigated

36—Sluka silt loam, 1 to 4 percent slopes

Composition

Sluka and similar soils—90 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,450 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Sluka Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 15 inches—pale brown silt loam
15 to 23 inches—light gray silt loam
23 to 38 inches—lime- and silica-cemented hardpan over light gray silt loam
38 to 48 inches—very pale brown silt loam
48 to 62 inches—very pale brown silt loam
Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 3 to 6 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Slight

Minor Components

- Portneuf soils (3 percent)
- Minveno soils on higher terraces (2 percent)
- McPan soils on higher terraces (2 percent)
- Bahem soils (2 percent)
- Soils that are moderately deep to bedrock and are on higher terraces (1 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factor: Precipitation

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6s, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

37—Sluka silt loam, 4 to 8 percent slopes

Composition

Sluka and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Side slopes of terraces
Elevation: 4,180 to 4,450 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Sluka Soil

Typical profile:
0 to 8 inches—brown silt loam
8 to 15 inches—pale brown silt loam
15 to 23 inches—light gray silt loam
23 to 38 inches—lime- and silica-cemented hardpan over light gray silt loam
38 to 48 inches—very pale brown silt loam
48 to 62 inches—very pale brown silt loam
Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 3 to 6 inches
Potential rooting depth: 20 to 40 inches
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Minor Components

- Minveno soils on higher terraces (3 percent)
- Portneuf soils (2 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Precipitation, slope, hazard of water erosion

Rangeland

Dominant vegetation in climax plant community: Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and the moderate hazard of water erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if water is regulated to control erosion.
- Production of irrigated crops is limited by slope and the moderate hazard of water erosion.
- Regulating irrigation water helps to control runoff and erosion.

Interpretive Groups

Land capability classification: 4e, irrigated, and 6e, nonirrigated
Ecological site: Loamy 8 to 10 PZ, 011AY001ID

38—Starbuck-McPan-Rock outcrop complex, 2 to 20 percent slopes

Composition

Starbuck and similar soils—40 percent
McPan and similar soils—30 percent
Rock outcrop—20 percent
Minor components—10 percent

Setting

Position on landscape: Terraces, pressure ridges
Elevation: 4,300 to 4,400 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 130 days

Characteristics of the Starbuck Soil

Typical profile:
0 to 5 inches—pale brown silt loam
5 to 15 inches—light yellowish brown silt loam
15 inches—bedrock
Position on landscape: Terraces
Depth class: Shallow to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 2.5 to 3.5 inches
Potential rooting depth: 12 to 20 inches
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the McPan Soil

Typical profile:
0 to 6 inches—brown loam
6 to 10 inches—yellowish brown silt loam
10 to 21 inches—yellowish brown silt loam
21 to 27 inches—very pale brown silt loam
27 to 28 inches—very pale brown lime- and silica-cemented hardpan
28 inches—bedrock
Position on landscape: Terraces

Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 3.5 to 9.0 inches
Potential rooting depth: 20 to 39 inches
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the Rock Outcrop

Kind of material: Basalt
Position on landscape: Pressure ridges

Minor Components

- Paulville soils in drainageways (10 percent)

Use and Management

Major use: Rangeland
Major management factors: Precipitation, Rock outcrop, depth to bedrock and available water capacity of the Starbuck soil
Dominant vegetation in climax plant community: Starbuck—bluebunch wheatgrass, Wyoming big sagebrush; McPan—bluebunch wheatgrass, basin big sagebrush
General management considerations:

- Forage production is limited by the low precipitation and by the shallow rooting depth and low available water capacity of the Starbuck soil.
- Seeding is limited by the low precipitation and areas of Rock outcrop.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: Starbuck and McPan—6e, nonirrigated; Rock outcrop—8
Ecological site: Starbuck—Shallow Loamy 8 to 12 PZ, 011AY002ID; McPan—Loamy 8 to 12 PZ, 011AY004ID

39—Taunton fine sandy loam, 1 to 4 percent slopes

Composition

Taunton and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,160 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Taunton Soil

Typical profile:
0 to 4 inches—brown fine sandy loam
4 to 12 inches—yellowish brown loam
12 to 19 inches—yellowish brown loam
19 to 25 inches—light gray gravelly loam
25 to 29 inches—white lime- and silica-cemented hardpan
Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 3.0 to 6.5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- Quincy soils on lower terraces (5 percent)

Use and Management

Major uses: Irrigated cropland, rangeland
Major management factors: Hazard of wind erosion, precipitation

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderate hazard of wind erosion.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Rangeland

Dominant vegetation in climax plant community: Needleandthread, Indian ricegrass, basin big sagebrush
General management considerations:

- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate hazard of wind erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6s, nonirrigated
Ecological site: Sand 8 to 12 PZ, 011AY014ID

40—Taunton-Paulville complex, 1 to 4 percent slopes

Composition

Taunton and similar soils—50 percent
Paulville and similar soils—30 percent
Minor components—20 percent

Setting

Position on landscape: Terraces
Elevation: 4,240 to 4,360 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Taunton Soil

Typical profile:
0 to 4 inches—brown loam
4 to 12 inches—yellowish brown loam
12 to 19 inches—yellowish brown loam
19 to 24 inches—light gray gravelly loam
24 to 28 inches—white lime- and silica-cemented hardpan
Depth class: Moderately deep to a hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: 3 to 6 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight

Characteristics of the Paulville Soil

Typical profile:
0 to 6 inches—brown silt loam
6 to 16 inches—yellowish brown loam
16 to 31 inches—yellowish brown loam
31 to 60 inches—light gray loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 9.0 to 10.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- McPan soils on ridges (5 percent)
- Starbuck soils on ridges (5 percent)
- Minveno soils (5 percent)
- Unkee soils on playas (3 percent)
- Rock outcrop (2 percent)

Use and Management

Major use: Rangeland
Major management factor: Precipitation
Dominant vegetation in climax plant community: Bluebunch wheatgrass, Thurber needlegrass, Wyoming big sagebrush
General management considerations:
- Forage production and seeding are limited by the low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Interpretive Groups

Land capability classification: 6e, nonirrigated
Ecological site: Taunton—Sand 8 to 12 PZ, 011AY014ID; Paulville—Loamy 8 to 12 PZ, 011AY004ID

41—Tindahay loamy sand, 0 to 1 percent slopes

Composition

Tindahay and similar soils—100 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Tindahay Soil

Typical profile:
0 to 8 inches—brown loamy sand
8 to 18 inches—brown sandy loam
18 to 23 inches—brown sandy loam
23 to 27 inches—grayish brown loamy sand
27 to 60 inches—pale brown gravelly sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: 3.5 to 5.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow

Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Minor Components

- None recognized

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability and severe hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3e, irrigated, and 7e, nonirrigated

42—Tindahay sandy loam, 0 to 1 percent slopes

Composition

Tindahay and similar soils—100 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Tindahay Soil

Typical profile:
0 to 8 inches—brown sandy loam
8 to 18 inches—brown sandy loam
18 to 23 inches—brown sandy loam
23 to 27 inches—grayish brown loamy sand
27 to 60 inches—gravelly sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: 4.0 to 5.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- None recognized

Use and Management

Major use: Irrigated cropland (fig. 7, p. 52)
Major management factors: Permeability, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3s, irrigated, and 6s, nonirrigated

43—Unkee clay loam, 0 to 1 percent slopes

Composition

Unkee and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Playas, terraces
Elevation: 4,140 to 4,420 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Unkee Soil

Typical profile:
1 inch to 0—moderately decomposed organic mat
0 to 7 inches—light brownish gray clay loam

7 to 46 inches—light brownish gray clay
46 to 65 inches—light brownish gray clay
Depth class: Very deep
Drainage class: Well drained
Frequency of ponding: Frequent in February and March
Permeability: Very slow
Available water capacity: 7.5 to 9.0 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Paulville soils (4 percent)
- Soils that are similar to the Unkee soil but have a very stony surface layer (1 percent)

Use and Management

Major use: Irrigated cropland
Major management factor: Permeability
General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the very slow permeability.
- Because of the very slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Interpretive Groups

Land capability classification: 3s, irrigated, and 6s, nonirrigated

44—Vining loamy sand, 1 to 8 percent slopes

Composition

Vining and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,160 to 4,300 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Vining Soil

Typical profile:
0 to 5 inches—brown loamy sand
5 to 10 inches—brown fine sandy loam
10 to 23 inches—brown fine sandy loam
23 inches—bedrock
Depth class: Moderately deep to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 2 to 5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Minor Components

- Quincy soils on lower terraces and in concave positions on terraces (3 percent)
- Rock outcrop on ridges (2 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Precipitation, hazard of wind erosion

Rangeland

Dominant vegetation in climax plant community: Indian ricegrass, needleandthread, basin big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the severe hazard of wind erosion and low precipitation.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the severe hazard of wind erosion.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 4e, irrigated, and 7e, nonirrigated
Ecological site: Sand 8 to 12 PZ, 011AY014ID

45—Vining sandy loam, 1 to 8 percent slopes

Composition

Vining and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,160 to 4,200 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Vining Soil

Typical profile:
0 to 5 inches—brown sandy loam
5 to 10 inches—brown fine sandy loam
10 to 23 inches—brown fine sandy loam
23 inches—bedrock
Depth class: Moderately deep to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 2.5 to 5.5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- Unkee soils in concave areas of lower terraces (3 percent)
- Rock outcrop on ridges (2 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Precipitation, permeability, hazard of wind erosion

Rangeland

Dominant vegetation in climax plant community: Needleandthread, Indian ricegrass, basin big sagebrush
General management considerations:
- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate hazard of wind erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:
- Most climatically adapted crops can be grown if irrigation water is provided.
- Sprinkler irrigation is best suited to this soil, but surface irrigation can be used if the water is regulated to control erosion.
- Production of irrigated crops is limited by the moderately rapid permeability and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 3e, irrigated, and 6e, nonirrigated
Ecological site: Sand 8 to 12 PZ, 011AY014ID

46—Vining-Kecko-Rock outcrop complex, 1 to 8 percent slopes

Composition

Vining and similar soils—50 percent
Kecko and similar soils—30 percent
Rock outcrop—10 percent
Minor components—10 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,300 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free season: 120 to 140 days

Characteristics of the Vining Soil

Typical profile:
0 to 5 inches—brown sandy loam
5 to 10 inches—brown fine sandy loam
10 to 23 inches—brown fine sandy loam
23 inches—bedrock
Depth class: Moderately deep to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 2.5 to 5.5 inches
Potential rooting depth: 20 to 40 inches
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Characteristics of the Kecko Soil

Typical profile:
0 to 4 inches—brown loamy fine sand
4 to 9 inches—brown fine sandy loam
9 to 21 inches—brown loam
21 to 26 inches—pale brown very fine sandy loam
26 to 42 inches—very pale brown very fine sandy loam
42 to 62 inches—very pale brown silt loam

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: 8.5 to 9.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Rock Outcrop

Kind of material: Basalt
Position on landscape: Pressure ridges

Minor Components

- Quincy soils on lower terraces and side slopes of terraces (7 percent)
- Eoyote soils on lower terraces (3 percent)

Use and Management

Major uses: Rangeland, irrigated cropland
Major management factors: Permeability, hazard of wind erosion

Rangeland

Dominant vegetation in climax plant community: Needleandthread, Indian ricegrass, basin big sagebrush
General management considerations:

- Forage production is limited by the low precipitation.
- Seeding is limited by the low precipitation and moderate or severe hazard of wind erosion.
- Seeding generally is most successful late in fall; however, it may not be successful in years when precipitation is below average during the growing season.

Irrigated cropland

General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to these soils.
- Production of irrigated crops is limited by the moderately rapid permeability and the moderate or severe hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: Vining—3e, irrigated, and 6e, nonirrigated; Kecko—2e, irrigated, and 6e, nonirrigated; Rock outcrop—8
Ecological site: Sand 8 to 10 PZ, 011AY014ID

47—Wodskow sandy loam, 0 to 2 percent slopes

Composition

Wodskow and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Wodskow Soil

Typical profile:
0 to 8 inches—grayish brown sandy loam
8 to 12 inches—grayish brown sandy loam
12 to 20 inches—light brownish gray sandy loam
20 to 28 inches—pale brown sandy loam
28 to 34 inches—white loam
34 to 40 inches—light gray sandy loam
40 to 55 inches—light gray loamy fine sand
55 to 60 inches—coarse sand

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Available water capacity: 5 to 7 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 30 to 50 inches

Minor Components

- Decker soils (3 percent)
- Schodson soils (2 percent)

Use and Management

Major use: Irrigated cropland (fig. 8, p. 53)
Major management factors: Permeability, water table, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Crop selection is limited by the irrigation-induced high water table.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability, high water table, and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.

Interpretive Groups

Land capability classification: 2w, irrigated, and 6e, nonirrigated

48—Wodskow sandy loam, saline, 0 to 2 percent slopes

Composition

Wodskow and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Terraces
Elevation: 4,150 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Wodskow Soil

Typical profile:
0 to 8 inches—grayish brown sandy loam
8 to 12 inches—grayish brown sandy loam
12 to 20 inches—light brownish gray sandy loam
20 to 28 inches—pale brown sandy loam
28 to 34 inches—white loam
34 to 40 inches—light gray sandy loam
40 to 55 inches—light gray loamy fine sand
55 to 60 inches—coarse sand

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Available water capacity: 4.0 to 6.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Depth to water table: 30 to 50 inches
Salinity: Slight or moderate in the surface layer

Minor Components

- Decker soils, saline (5 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, water table, hazard of wind erosion, salinity
General management considerations:

- Crop selection is limited by the irrigation-induced high water table and the salinity.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately rapid permeability, high water table, slight or moderate salinity, and moderate hazard of wind erosion.
- Because of the moderately rapid permeability, the application of irrigation water should be adjusted to the water intake rate.
- The high water table can be lowered by installing subsurface drainage systems.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.
- Salt-tolerant crops should be grown.

Interpretive Groups

Land capability classification: 3w, irrigated, and 6s, nonirrigated

49—Woozle fine sandy loam, 0 to 1 percent slopes

Composition

Woozle and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Alluvial terraces

Elevation: 4,145 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Woozle Soil

Typical profile:
0 to 10 inches—brown fine sandy loam
10 to 21 inches—brown loam
21 to 35 inches—light gray silt loam
35 to 42 inches—very pale brown loam
42 to 47 inches—light gray loamy fine sand
47 to 60 inches—light brownish gray fine sand
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 7.5 to 8.5 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate

Minor Components

- Eoyote soils on higher terraces (3 percent)
- Quincy soils on higher terraces (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factors: Permeability, hazard of wind erosion
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderate hazard of wind erosion and moderately slow permeability.
- The risk of wind erosion can be reduced by maintaining crop residue on the surface, keeping tillage at a minimum, and keeping the soil rough.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Interpretive Groups

Land capability classification: 2e, irrigated, and 6e, nonirrigated

50—Woozle loam, 0 to 1 percent slopes

Composition

Woozle and similar soils—95 percent
Minor components—5 percent

Setting

Position on landscape: Alluvial terraces
Elevation: 4,140 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free season: 130 to 140 days

Characteristics of the Woozle Soil

Typical profile:
0 to 10 inches—brown loam
10 to 21 inches—brown loam
21 to 35 inches—light gray silt loam
35 to 42 inches—very pale brown loam
42 to 47 inches—light gray loamy fine sand
47 to 60 inches—light brownish gray fine sand
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: 8 to 9 inches
Potential rooting depth: 60 inches or more
Runoff: Slow
Hazard of water erosion: Slight

Minor Components

- Eoyote soils on higher terraces (3 percent)
- Unkee soils on lower terraces (2 percent)

Use and Management

Major use: Irrigated cropland
Major management factor: Permeability
General management considerations:

- Most climatically adapted crops can be grown if irrigation water is provided.
- Surface and sprinkler irrigation systems are suited to this soil.
- Production of irrigated crops is limited by the moderately slow permeability.
- Because of the moderately slow permeability, the application of irrigation water should be adjusted to the water intake rate.

Interpretive Groups

Land capability classification: 2c, irrigated, and 6c, nonirrigated

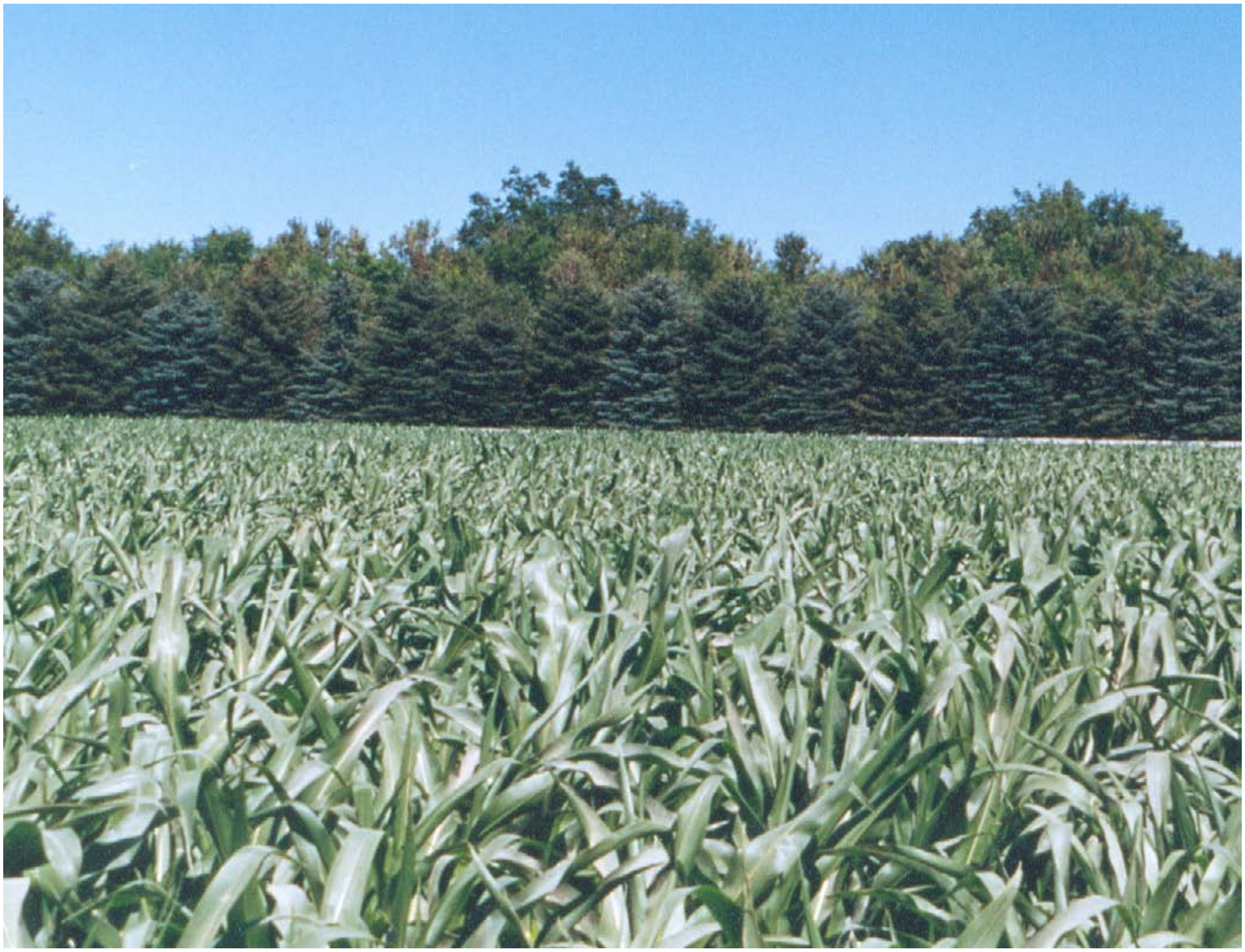

Figure 2.—Area of Bahem silt loam, 1 to 4 percent slopes, used for growing corn for silage.

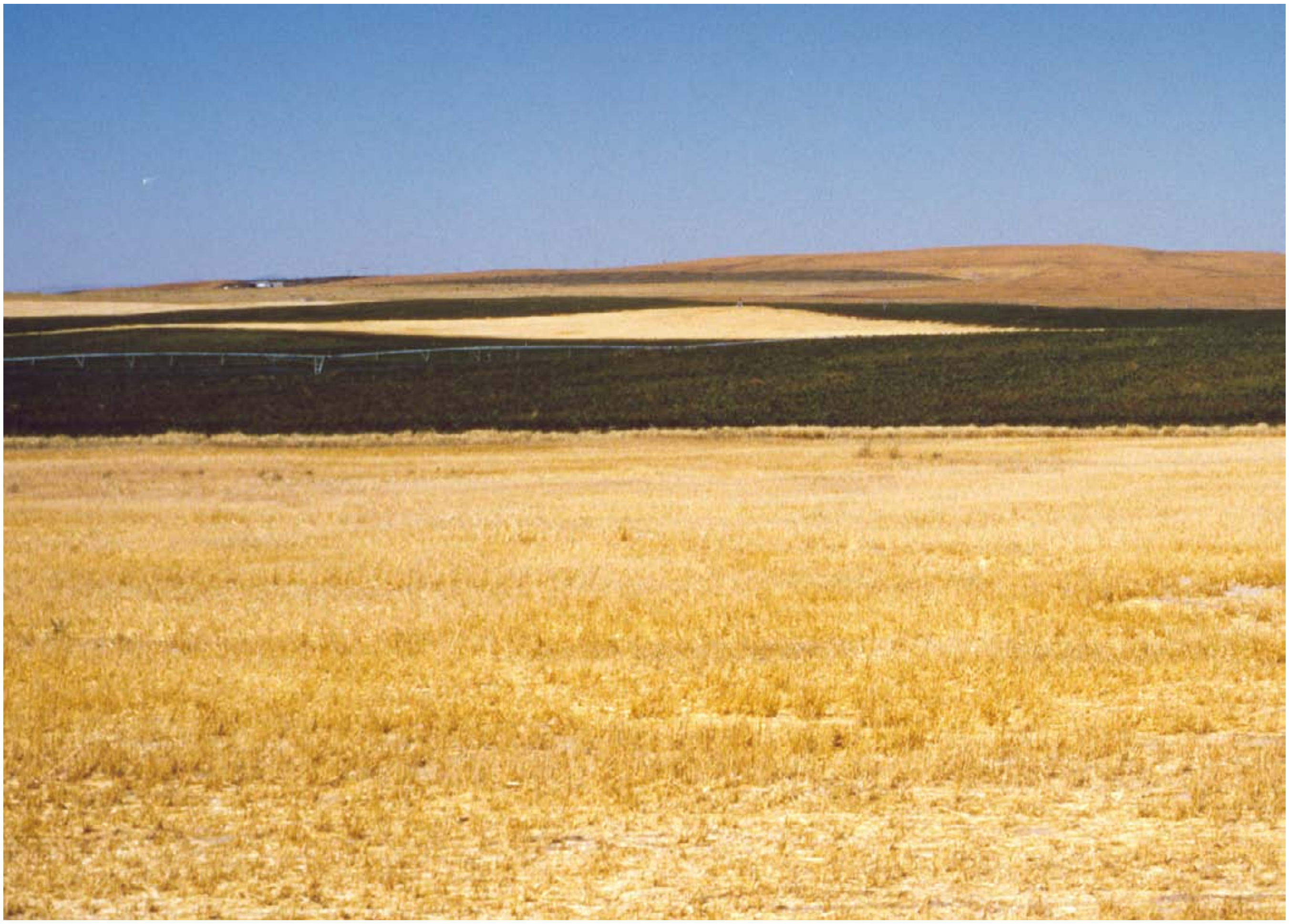

Figure 3.—Area of Minveno silt loam, 1 to 8 percent slopes, used for growing barley and sugar beets.

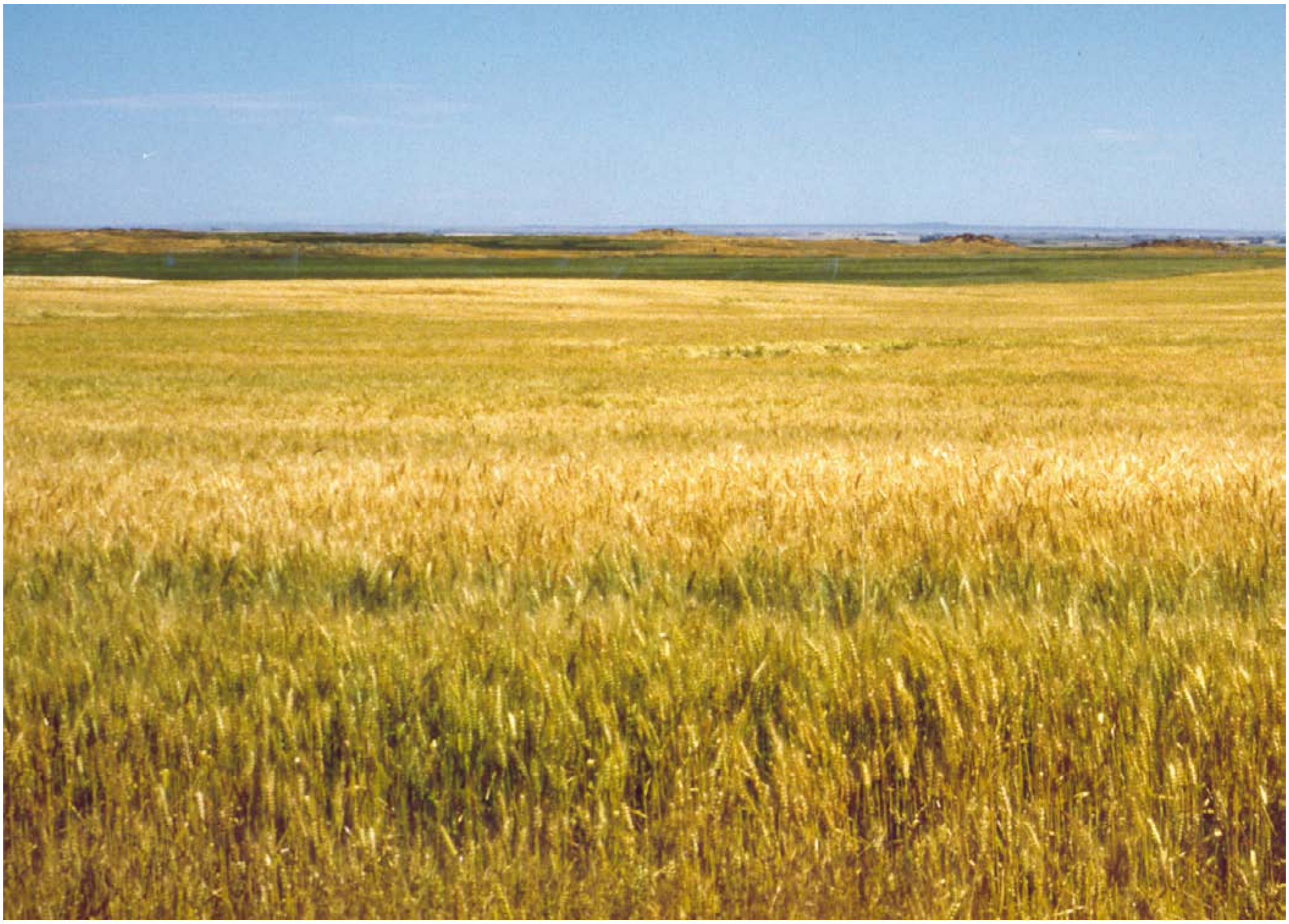

Figure 4.—Area of Paulville-McPan complex, 1 to 4 percent slopes, used for growing wheat. Paulville soils are in background, and McPan soils are in foreground.

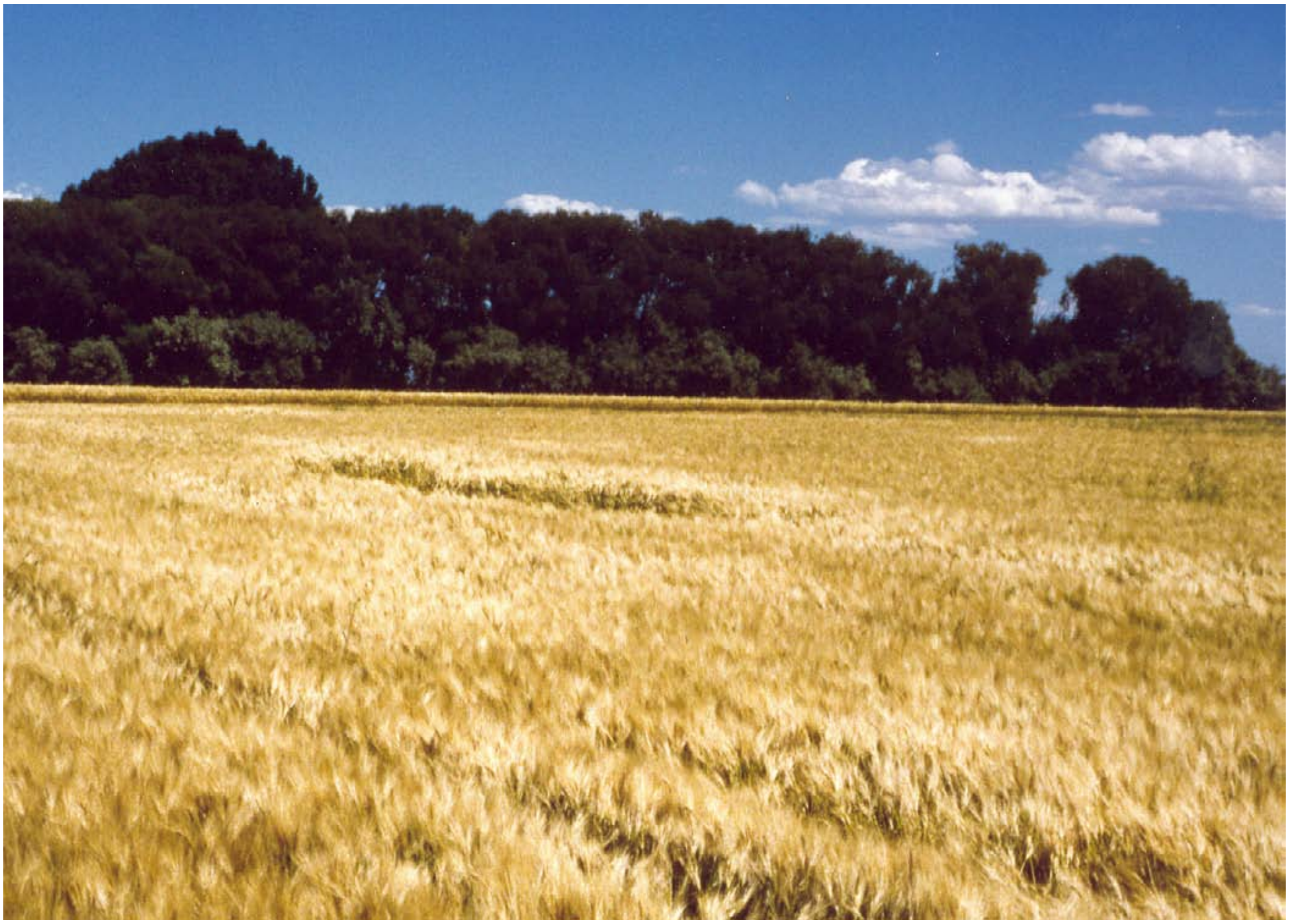

Figure 5.—Area of Portneuf silt loam, 1 to 4 percent slopes, used for growing malt barley.

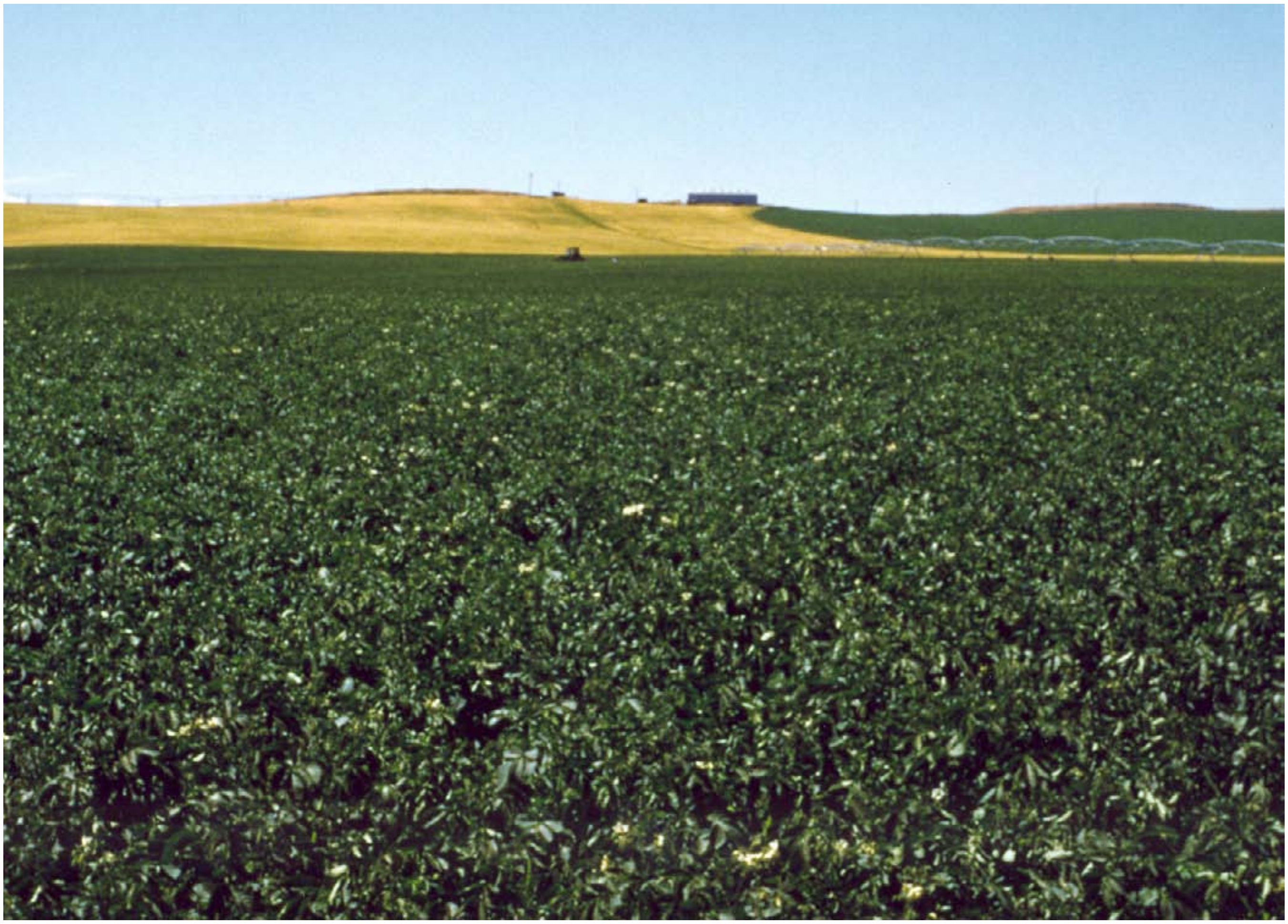

Figure 6.—Area of Power silt loam, 1 to 4 percent slopes, in foreground. This area is used for growing sugar beets. Power-McCain complex, 1 to 6 percent slopes, in background.

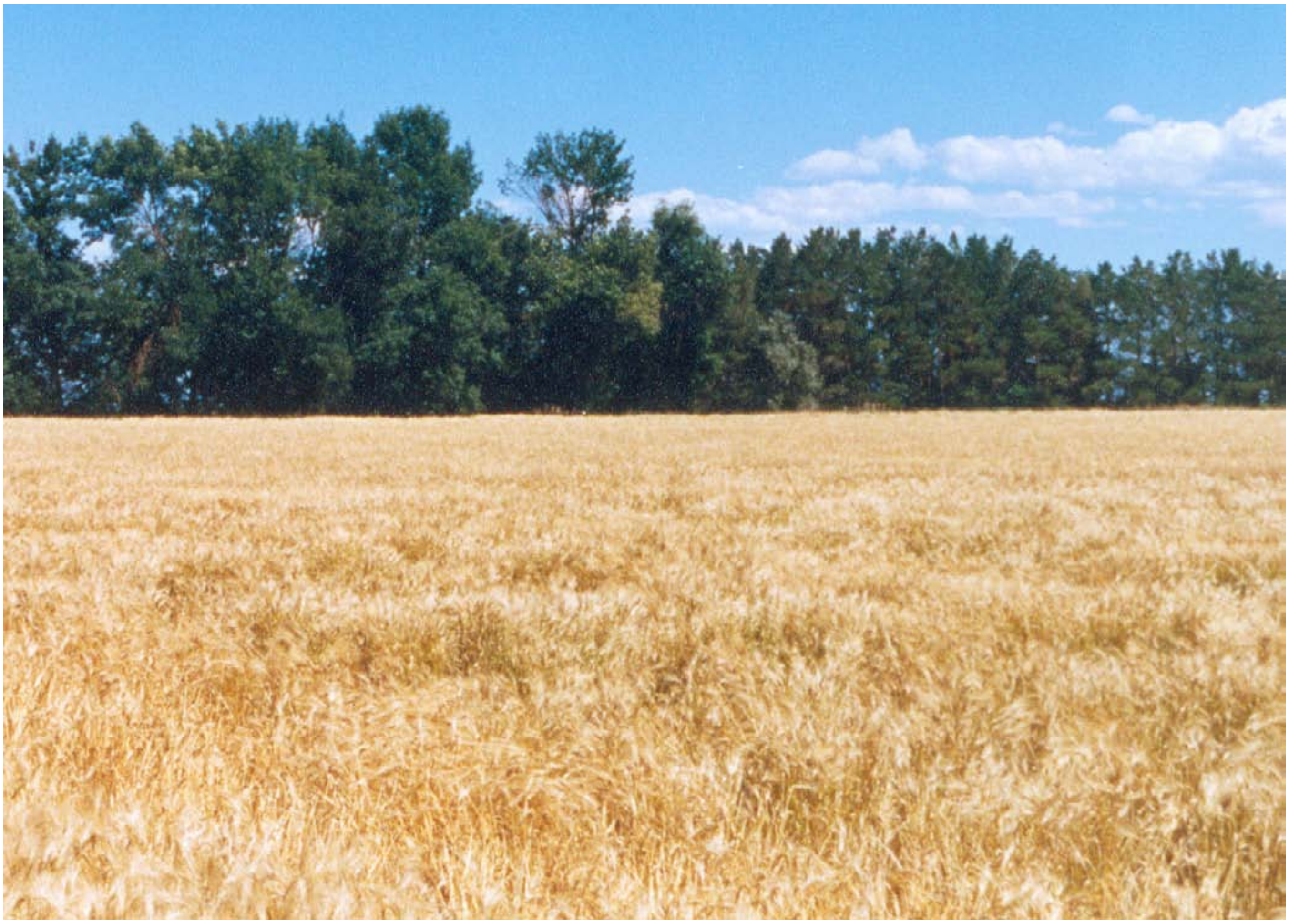

Figure 7.—Area of Tindahay sandy loam, 0 to 1 percent slopes, used for growing malt barley.

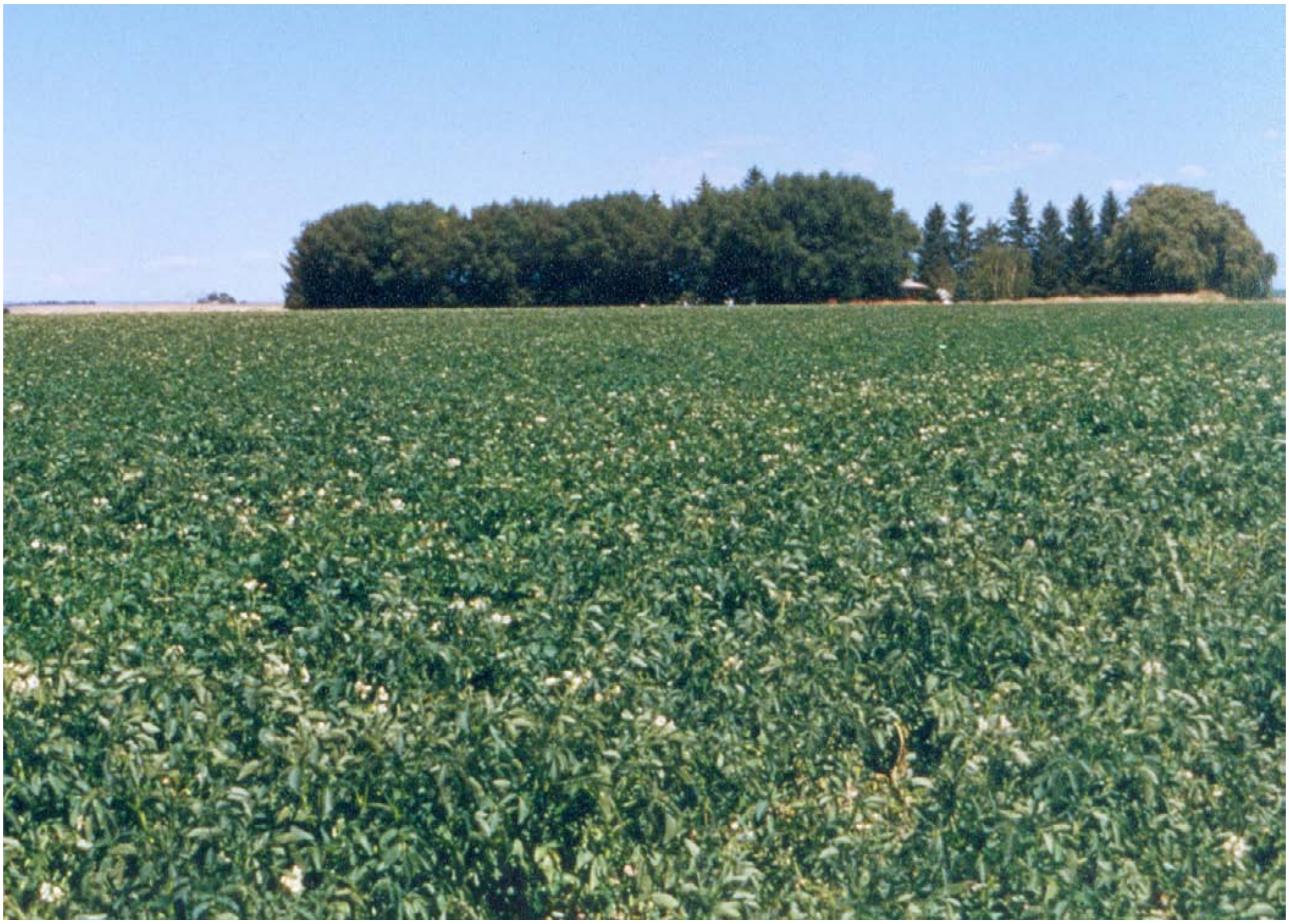

Figure 8.—Area of Wodskow sandy loam, 0 to 2 percent slopes, used for growing potatoes.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

Maureen Boling, soil conservationist, Natural Resources Conservation Service, helped to prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

About 221,000 acres of the survey area is used as irrigated cropland and hayland. Sugar beets, potatoes, and small grain are the most economically important crops grown. About 105,000 acres is used for small grain, 46,000 acres for sugar beets, 28,000 acres for potatoes, 23,000 acres for alfalfa hay, and 7,000 acres for dry beans. Small acreages of oats, corn for silage, and seed crops, such as radishes, onions, and green peas, are also grown.

About 7,000 acres of the survey area is used as irrigated permanent pasture, of which about one-third is subirrigated. Sheep, cattle, and dairy cow operations are important to the local economy. Hog and chicken operations are increasing in importance. Barley, wheat, alfalfa hay, and corn for silage are grown for feed. Grain stubble and row crop residue commonly are grazed.

Irrigation generally is needed to profitably grow crops and pasture plants in the survey area; however, an irrigation system typically is not needed for pasture in areas of wet soils because of the subirrigation. Approximately three-fourths of the cropland is irrigated with sprinkler systems. Gravity-furrow irrigation systems with concrete ditches or gated pipe are used to irrigate the remaining areas of cropland. In areas of nearly level soils, use of border irrigation minimizes cost by eliminating the use of energy needed to operate the pumps in sprinkler systems.

Use of a high level of management mitigates the inherent differences in productivity between soils. Greater differences in yields between contrasting soils can be expected if a moderate or low level of management is used.

Climate and availability of water.—Local differences in climate and the availability of irrigation water affect crop yields. Estimated crop yields take into consideration the influence of climate and the length of the growing season. In areas of nearly level soils on alluvial terraces in the Minidoka Irrigation District, the warmer temperatures and longer growing season result in higher yields for most crops.

Proper management practices can help to compensate for the differences in the length of the growing season. For example, despite the shorter growing season of the soils in the A & B Irrigation District, more beans are grown on the soils in this district than on those in the Minidoka Irrigation District. Changing the time of planting and harvesting and eliminating the application of fertilizer help to compensate for the shorter growing season by causing the beans to mature and ripen more quickly. For most crops grown in the survey area, timeliness of planting, fertilizing, controlling pests, and harvesting is of utmost importance.

Yields are also strongly influenced by the availability of irrigation water. The A & B Irrigation District supplies a maximum of 0.75 inch of water per acre. In contrast, most irrigation systems in southern Idaho are designed to apply 1 inch of water per acre. The lack of sufficient water results in lower average yields of crops grown on soils in the A & B Irrigation District and in areas with wells than those of crops grown on soils in the Minidoka Irrigation District.

Pasture yields and management.—Much of the pasture in the survey area is not well managed and is in poor condition. Production generally can be tripled if intensive management is used, including use of practices such as rotational grazing, cross-fencing, developing stock water, fertilizing, managing water, and deep ripping. In areas where the existing species of grass are poorly suited to the soil properties, seeding with more suitable species and intensive management can increase production by four or five times. About 2,300 acres of pastureland is on somewhat poorly drained or poorly drained soils that have varying levels of salinity and sodicity. High production on these soils typically can be achieved by seeding with varieties that tolerate a high water table, such as Garrison meadow foxtail or Johnstone tall fescue, which is suited to wet, saline areas.

Seeding may also be needed for high production on well drained soils, but a wider selection of varieties is suitable. Pasture plants suitable for medium-textured soils include Latar orchardgrass, Regar brome, and tall fescue. Sandy soils, such as those of the Quincy, Vining, and Tindahay series, typically are not used for pasture because of the difficulty of supplying an adequate amount of irrigation water. The local office of the Cooperative Extension Service or the Natural Resources Conservation Service can provide more information on increasing pasture yields through improved management and seeding.

Crop yields and management.—Because not all locally grown crops are produced on all of the soils in the survey area, estimated yields are shown in table 5 only for the soils on which the crops are grown. For example, alfalfa is suited to well drained soils only, so yields for alfalfa are not shown for wet soils such as those of the Abo, Garsox, Arloval, Decker, Schodson, and Wodskow series.

Wheat, feed barley, and sugar beets can be grown successfully on many types of soils. These crops have considerable tolerance for limited soil depth, wetness, salinity, and carbonates. Potatoes, beans, malt barley, and corn for silage are more sensitive to soil properties. For example, potato yields are much lower on wet soils, such as those of the Decker and Arloval series, and on soils that are less than 40 inches deep, such as those of the Vining and Sluka series. High yields of potatoes of excellent quality can be produced on very deep sandy soils, such as those of the Quincy, Tindahay, and Kecko series, if sufficient irrigation water is provided; however, they can also be grown on very deep, medium-textured silt loam and loam soils, such as those of the Woozle, Hynes, Portneuf, Power, and Bahem soils. Less water and fertilizer are needed for the medium-textured soils, but practices such as subsoiling and reservoir tillage may be needed for optimum plant growth. Production of malt barley is similar to that of wheat and feed barley in that yields are about the same on the moderately deep soils, such as those of the Sluka and McCain series, as on the very deep soils, such as those of the Portneuf and Power series. Yields of all small grain crops are substantially lower on shallow soils. Unlike wheat and feed barley; however, the protein content of malt barley is too low to meet the criteria for quality if it is grown on wet soils. Beans, corn, and potatoes are intolerant of salinity and sodicity, so these crops are not suited to the sodic Garsox soils or the saline phases of the Decker and Wodskow soils.

Water erosion in areas of cropland.—Despite the fact that nearly 75 percent of the cropland in the survey area is irrigated with sprinkler systems, irrigation-induced soil erosion is a serious concern. The most severe water erosion occurs where gravity-furrow irrigation systems are used on silt loam soils in rolling, bedrock-controlled areas. The rate of erosion was measured in an area of Power silt loam on a 2.5-percent slope with a furrow 900 feet long. The amount of soil loss per year was 12.8 tons per acre of wheat, 32.4 tons per acre of sugar beets, and 24.4 tons per acre of beans. Converting to a sprinkler system can reduce soil loss, but it does not always eliminate erosion. Under pivot sprinkler systems, soil loss has been measured as high as 14 tons per acre per year. Soils that have slopes of more than 4 percent and have a silt loam surface texture are especially vulnerable.

In addition to converting from gravity-furrow systems to sprinkler systems, practices are needed to control irrigation-induced erosion. These include residue management, conservation tillage, and deep ripping, which reduces soil inversion. Other practices that are effective in controlling irrigation-induced erosion include use of graded diversions to keep runoff from concentrating in the tracks produced by pivot wheels and use of sediment basins to minimize overland flow and movement of sediment offsite.

The most erosive soils are those that have a high amount of carbonates in the subsoil and have already been eroded to the extent that the subsoil is exposed. These soils, locally known as “white ground,” show up as light-colored areas in fields. In addition to crop residue management and conservation tillage, the addition of organic matter such as animal manure or compost can reduce runoff, increase water infiltration, and improve soil structure.

Wind erosion in areas of cropland and wind damage to seedlings.—The critical wind erosion period is February 1 through May 1. Wind erosion is a concern primarily on cropland soils that have a loamy sand, loamy fine sand, sandy loam, or fine sandy loam surface texture. Wind erosion and seedling damage are mitigated by use of farming systems that leave more than 1,500 pounds of plant residue on the soil surface per acre. Planting windbreaks and orienting crop rows perpendicular to the wind also help to minimize damage to crops. Bean and sugar beet seedlings are fragile and are easily damaged by windblown particles of sand; therefore, use of windbreaks is strongly recommended in areas of sandy soils where these crops are grown.

Quality of subsurface water.—In several parts of the survey area, the ground water has been contaminated by nitrates and other pollutants. Special precautions in the use of chemical fertilizer and animal waste and in the application of irrigation water are needed. A high water table that is a result of irrigation affects about 35,000 acres on the low terrace near the Snake River. Management of nutrients and irrigation water is critical in this area because the water table is within the root zone for crops. This high water table is extremely vulnerable to contamination from agricultural chemicals and manure nutrients. About 19,000 acres of cropland has a shallow aquifer about 30 feet below the surface. Nutrients and agricultural chemicals that leach through the root zone enter a layer of coarse sand overlying the aquifer. Another area at risk is about 24,000 acres of cropland on sandy soils in the southeastern part of Minidoka County. This area overlies fractured basalt, and the aquifer is at a depth of about 100 feet. Another area of concern is a large acreage of shallow Minveno soils near the center of the survey area. These soils are 10 to 20 inches deep over a fractured hardpan that is underlain by fractured basalt.

Proper management of nutrients and irrigation water help to reduce deep leaching of contaminants. Cropping practices that can be used include applying irrigation water and fertilizer throughout the growing season according to the needs of the crop grown, using multiple applications of fertilizer, avoiding the application of fertilizer in fall, and increasing the content of organic matter in the soil. On soils that are subject to a risk of ground water contamination, crops that require a large amount of fertilizer should be followed by crops such as potatoes and sugar beets that will use the remaining fertilizer. Alfalfa should be followed by a crop that uses nitrogen early in the growing season, because nitrogen that can leach into the ground water is released as the roots of alfalfa plants decay.

Quality of surface water.—About one-half of the cropland in the survey area is in watersheds that drain into the Snake River through the drainage canals of the Minidoka Irrigation System. Sediment-laden runoff from the cropland and pastureland enters the Snake River through these canals. In winter, soluble nutrients such as nitrates leach out of the lower elevation soils and enter the Snake River through this drainage system. Practices that reduce erosion, runoff, and deep leaching of agricultural chemicals and animal waste will also enhance the quality of the surface water.

Yields per Acre

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table. A variety of sources was used to develop this table. These include Idaho Agricultural Statistics

(Gerhardt and Stringer, 1994), integrated crop management records from the A & B and Minidoka Irrigation Districts and from the Snake River Water Quality Demonstration Project, and interviews with farmers, commodity and fertilizer consultants, and University of Idaho personnel.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

It is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat. Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 5.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 8 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 258,000 acres, or nearly 80 percent of the survey area, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water was available. The map units in the survey area that are considered prime farmland if irrigated are listed in this section. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units." The map units that meet the requirements for prime farmland if irrigated are:

1	Abo sandy loam, 0 to 2 percent slopes
2	Abo loam, 0 to 2 percent slopes
4	Arloval sandy loam, 0 to 2 percent slopes
5	Bahem silt loam, 1 to 4 percent slopes
6	Bahem silt loam, 4 to 8 percent slopes
9	Decker fine sandy loam, 0 to 2 percent slopes
10	Decker loam, 0 to 2 percent slopes
12	Dolman silt loam, 1 to 4 percent slopes
13	Eoyote fine sandy loam, 0 to 2 percent slopes
16	Hynes silt loam, 0 to 2 percent slopes
17	Kecko fine sandy loam, 1 to 4 percent slopes
18	Minveno silt loam, 1 to 8 percent slopes
19	Owsel silt loam, 1 to 4 percent slopes
20	Paulville-McPan complex, 1 to 4 percent slopes
23	Portneuf silt loam, 0 to 1 percent slopes
24	Portneuf silt loam, 1 to 4 percent slopes
25	Portneuf silt loam, 4 to 8 percent slopes
26	Power silt loam, 1 to 4 percent slopes
27	Power silt loam, 4 to 8 percent slopes
29	Power-McCain complex, 1 to 6 percent slopes
31	Rad silt loam, 1 to 4 percent slopes
35	Schodson sandy loam, 0 to 1 percent slopes
36	Sluka silt loam, 1 to 4 percent slopes
37	Sluka silt loam, 4 to 8 percent slopes
39	Taunton fine sandy loam, 1 to 4 percent slopes
40	Taunton-Paulville complex, 1 to 4 percent slopes
42	Tindahay sandy loam, 0 to 1 percent slopes
47	Wodskow sandy loam, 0 to 2 percent slopes
49	Woozle fine sandy loam, 0 to 1 percent slopes
50	Woozle loam, 0 to 1 percent slopes

Rangeland

Fred Neilson, district conservationist, Natural Resources Conservation Service, helped to prepare this section.

Approximately 75,000 acres, or about 23 percent of the survey area, is rangeland. Of this, about 41 percent is managed by the Bureau of Land Management and 59 percent is managed by private ranchers.

Commercial livestock enterprises include a few cow-calf operations, but the majority of the range is used for sheep operations. The survey area has the largest sheep population in Idaho. The rangeland is grazed mainly in winter, spring, and fall. In summer, the sheep graze in the mountains in other areas. Producers keep the sheep on the rangeland as long as the weather permits, but if necessary they are moved onto private land where they are fed ranch-raised alfalfa. Crop aftermath provides a significant amount of forage for some sheep operations.

The rangeland in the lower semidesert areas is suitable for grazing by sheep in fall and early in spring, because these areas are protected from the bad weather. Use of a management system that rotates sheep from place to place helps to promote healthy rangeland.

Historically, the rangeland plant community consisted of a mixed stand of bunchgrass, forbs, and shrubs. Climatic factors dictated the diversity of the plant community, with lower lying terraces supporting Thurber needlegrass and Wyoming big sagebrush and higher lying uplands supporting mainly bluebunch wheatgrass, Idaho fescue, and Wyoming big sagebrush. Overgrazing and frequent wildfires have eliminated many of the perennial plants and increased the annuals and shrubs. As a result, the production of forage has been reduced and seeding has become an economic necessity. Presently, native vegetation exists only in isolated areas that are protected from grazing and frequent wildfires. Management practices suited to the specific ecological sites can be used to increase the productivity of rangeland.

In areas that have similar climate and topography, differences in the kind and amount of vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil that supports vegetation suitable for grazing, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in table 6 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the climax plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the climax plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the climax plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the climax plant community on a particular ecological site. The more closely the existing community resembles the climax community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the climax plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook," which is available in local offices of the Natural Resources Conservation Service.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the climax plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the climax meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 7 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 7 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Wildlife

By Ronald Gill, biologist, Natural Resources Conservation Service, with assistance from the Bureau of Land Management and the Idaho Department of Fish and Game.

This section relates the general soil map units to wildlife habitat in the survey area. Wildlife habitat generally is determined by the plant community that each soil supports. In this survey area, most of the land has been converted from native range to annual crops grown under irrigation. Exceptions are the Minidoka National Wildlife Refuge (general soil map unit 5), areas that consist dominantly of shallow soils and Rock outcrop (general soil map unit 4), isolated tracts of native range in the A & B Irrigation District (general soil map units 1 and 2), and narrow riparian areas on the north bank of the Snake River (general soil map units 1, 5, 6, and 8).

Birds are the most visible wildlife on the agricultural land. Hawks and owls prey on the rodents that live in the crop fields. Skunks and other mammalian predators also prey on the rodents. Plantings of trees and shrubs benefit wildlife on this land. Robins, house finches, orioles, western kingbird, and mourning dove are attracted to the planted trees and shrubs.

The Snake River, which is along the southern boundary of the survey area, provides riparian and open water habitat. These areas are used mainly by migratory waterfowl and fish-eating birds. Drains close to the river remain wet year round, providing habitat for furbearers. With its combination of free-flowing and slack water, the river supports both sport and commercial fisheries.

The fish and wildlife resources in the survey area are determined largely by the suitability of the habitat, including the supply of food, the amount of cover, and the availability of water. Habitat differs in its capacity to provide these essential ingredients.

The habitat necessary for fish and wildlife should be considered when planning and recommending conservation management practices.

Ungulates

Deer, elk, and antelope winter in or near the northern edge on the survey area (general soil map unit 4). Year to year their presence is dictated by the severity of the weather in winter. During the most severe winters, deer move into general soil map units 1, 2, 3, and 5, but they do not travel far into these units because of a lack of cover.

Avians

The best known upland game bird in the area is the ring-necked pheasant; however, it is no longer the signature game bird of the farmland. A loss of wintering and nesting cover in all of the general soil map units except unit 4 and fewer planted birds have significantly reduced the population of this introduced species.

Migratory waterfowl and fish-eating birds are the most visible wildlife in the survey area. The fields and trees in general soil map units 1, 5, 6, and 8 provide feeding, resting, and loafing areas for these birds. Canada geese, tundra swan, mallards, common goldeneye, and bufflehead are common waterfowl in the area. Fish-eating birds include white pelican, double-crested cormorant, mergansers, and gulls.

Isolated tracts of native rangeland in general soil map unit 1 provide habitat for long-billed curlew. These tracts as well as general soil map units 4 and 5 provide habitat for sagebrush obligates such as sage thrasher, Brewer’s sparrow, sage sparrow, and sage grouse.

Raptors

Predatory birds are common in open farmland. While all the predatory birds feed on the same prey base of small rodents, they often separate themselves according to the time of day they hunt and the territory in which they hunt. Barn owl and great horned owl hunt at night. Northern harrier and red-tailed hawk hunt the crop fields in summer, and rough-legged hawk hunt the crop fields in winter. Kestrel commonly perch on telephone wires and hunt the edges of the fields and roadside ditches. Less common raptors include Swainson's hawk and prairie falcon in areas of cropland, burrowing owl in isolated tracts of native rangeland, and bald eagle that roost in the tall trees near the Snake River in winter.

Furbearers

Furbearers, such as beaver, muskrat, mink, and river otter, live in the drains and canals in general soil map units 6 and 8. Because these drains and canals are close to the Snake River and are on low terraces, they remain wet year round.

Coyote, red fox, and badger are throughout the survey area. They commonly hunt small rodents in crop fields.

Amphibians and Reptiles

Because this survey area is arid, it supports only a very small population of amphibians that need areas of water or very moist soils to complete their lifecycle. Amphibians common to the area include the great basin spadefoot frog, boreal chorus frog, and northern leopard frog. These amphibians are in wet spots in fields, in drains, and in gardens where there is sufficient water.

Stands of sagebrush in the isolated tracts of native rangeland provide habitat for sagebrush lizard and horned lizard. Kingsnake, gopher snake, and western terrestrial garter snake are common in farmed areas. Western rattlesnake can be found throughout the survey area.

Fisheries

With limited open water other than the Snake River, fisheries are restricted mainly to the river. Trout, sculpin, and dace are common species. The slack water of Milner Pool and Lake Walcott supports carp, providing one of the few commercial fisheries in Idaho.

Threatened and Endangered Species

Four threatened or endangered species are in the survey area. The best known species is the bald eagle, which winters along the Snake River. Tall trees near the river in general soil map units 6 and 7 provide roosting sites for these birds.

Three species of snails live in the Snake River, but they are not directly linked to specific general soil map units. The Utah valvata snail lives in deep pools in well-oxygenated areas of mud or muddy sand among beds of aquatic vegetation. The Snake River physa snail is on boulders in the deep water at the margins of rapids. The Bliss Rapids snail is in areas of swift currents on stable bottoms consisting of cobbles and boulders. The status of these snail species is directly related to the need for clean, well-oxygenated water with low turbidity. Use of soil conservation practices that minimize soil erosion and sedimentation in streams, especially in general soil map units 1, 5, 6, and 8, will help in the recovery of these mollusks.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 9 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 10, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 12 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 13 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 13, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 13, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 13 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 14 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 15 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 15 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. In this survey area, the water table typically is present from April through October. Because it is present during the dry period in summer, it is assumed to be induced by irrigation water.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 15 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 16 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Aridisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Durid (*Dur*, meaning duripan, plus *id*, from Aridisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haplodurids (*Hapl*, meaning minimal horizonation, plus *durid*, the suborder of the Aridisols that has an aridic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Xeric* identifies the intergrade subgroup of the great group. An example is Xeric Haplodurids.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, superactive, mesic Xeric Haplodurids.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (USDA, 1993) and the guides in the “National Soil Survey Handbook” (USDA, 1996). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1999) and in “Keys to Soil Taxonomy” (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

Abo Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,145 to 4,155 feet
Average annual precipitation: 8 to 10 inches

Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Calciargids

Typical Pedon

Ap—0 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist, dark grayish brown (10YR 4/2) crushed and moist; dominantly weak very fine granular structure, but few peds that have weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; slightly alkaline; abrupt smooth boundary.

Bt—9 to 15 inches; brown (10YR 5/3) clay loam, pale brown (10YR 6/3) crushed, dark brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate medium and fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores; common faint clay films on faces of peds and in pores; mostly noncalcareous, but very few worm channels 2 to 4 millimeters wide filled with light gray calcareous material; slightly alkaline; abrupt wavy boundary.

Btk—15 to 19 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; many very fine and fine tubular pores; common faint clay films on faces of peds and in pores; matrix mostly noncalcareous but common fine veins and splotches of lime; slightly alkaline; clear smooth boundary.

Bk1—19 to 24 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; many very fine and common fine tubular pores; few cicada krotovinas; strongly effervescent; common veins and splotches of lime; slightly alkaline; clear smooth boundary.

Bk2—24 to 34 inches; light gray (10YR 7/2) and white (10YR 8/2) loam, brown (10YR 5/3) and light brownish gray (10YR 6/2) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; common cicada krotovinas; strongly effervescent; common veins and splotches of lime; moderately alkaline; clear smooth boundary.

Bk3—34 to 45 inches; very pale brown (10YR 8/2) loam, light brownish gray (10YR 6/2) moist; common fine and medium distinct brown (10YR 5/3) redoximorphic concentrations, dark yellowish brown (10YR 4/4) moist; moderate thin and very thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; few roots; common very fine tubular pores; few cicada krotovinas; strongly effervescent; few veins and spots of lime; moderately alkaline; clear smooth boundary.

Bk4—45 to 51 inches; very pale brown (10YR 8/2) loam, light brownish gray (10YR 6/2) moist; common fine and medium distinct brown (10YR 5/3) redoximorphic concentrations, dark yellowish brown (10YR 4/4) moist; weak thin and very thin platy structure; soft, friable, slightly and slightly plastic; few roots; common very fine tubular pores; few cicada krotovinas; strongly effervescent; few veins and spots of lime; moderately alkaline; clear smooth boundary.

2C—51 to 60 inches; sand; few splotches of lime in the upper 2 inches.

Typical Pedon Location

Map unit in which located: Abo loam, 0 to 2 percent slopes

Location in survey area: About 1 mile east of Paul, Idaho, on a level terrace; 680 feet north and 580 feet east of the southwest corner of sec. 27, T. 9 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the water table—24 to 50 inches in April through October
Depth to redoximorphic segregations of iron or manganese—30 to 40 inches
Depth to the calcic horizon—11 to 32 inches
Depth to the 2C horizon—40 to 60 inches or more

Ap horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline
Texture—loam or sandy loam

Bt horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3
Texture—clay loam or silty clay loam
Clay content—30 to 35 percent
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Value—6 to 8 dry, 5 or 6 moist
Chroma—2 or 3

Texture—loam, silt loam, or very fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—15 to 25 percent

2C horizon (where present):
Texture—stratified coarse sand to fine gravelly coarse sandy loam
Gravel content—0 to 25 percent
Reaction—slightly alkaline or moderately alkaline

Arloval Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Mixed, mesic Typic Psammaquents

Typical Pedon

Ap—0 to 10 inches; grayish brown (10YR 5/2) loamy fine sand, light brownish gray (10YR 6/2) crushed and dry, very dark grayish brown (10YR 3/2) moist, dark grayish brown (10YR 4/2) crushed and moist; few faint brown (10YR 5/3) masses of iron accumulation; massive; soft, very friable, nonsticky and nonplastic; many fine and very fine roots and common medium roots; many very fine irregular pores and common very fine tubular pores; slightly alkaline; abrupt smooth boundary.

AC—10 to 23 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; common fine distinct strong brown (7.5YR 5/6) and brown (10YR 5/3) masses of iron accumulation and depletion, dark brown (7.5YR 4/4 and 3/2) and very dark brown (10YR 2/2) moist; very weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots and few medium roots; many very fine irregular pores and common very fine tubular pores; slightly effervescent in places; few fine spots and veins of lime; slightly alkaline; clear smooth boundary.

C1—23 to 35 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; many fine distinct brown (7.5YR 4/2) and dark grayish brown (10YR 4/2) masses of iron depletion, dark brown (7.5YR 3/2) and very dark brown (10YR 2/2) moist; few prominent brown (7.5YR 5/4 and 4/3) and reddish brown (5YR 5/4) masses of iron accumulation, dark brown (7.5YR 3/3) and reddish brown (5YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine tubular pores; mostly noneffervescent, but very few fine spots of lime in upper part; slightly alkaline; gradual wavy boundary.

C2—35 to 52 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; few fine distinct light yellowish brown (10YR 6/4) masses of iron depletion, yellowish brown (10YR 5/4) moist; few fine faint brown (10YR 5/3) masses of iron accumulation, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine irregular pores and common very fine tubular pores; 5 percent gravel; slightly alkaline; gradual wavy boundary.

C3—52 to 60 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; few faint masses of iron depletion; slightly hard, very friable, nonsticky and nonplastic; many very fine irregular pores and few very fine tubular pores; 5 percent gravel; slightly alkaline.

Typical Pedon Location

Map unit in which located: Arloval loamy fine sand, 0 to 2 percent slopes
Location in survey area: About 2.25 miles south of Rupert, Idaho; about 180 feet northwest of the southeast corner of the NE1/4NE1/4 of sec. 8, T. 10 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the water table—10 to 50 inches in April through October
Reaction—slightly alkaline or moderately alkaline

Particle-size control section:
Texture—loamy fine sand or loamy sand
Gravel content—0 to 15 percent

Ap horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Texture—sandy loam or loamy fine sand
Effervescence—none or slight

AC and C horizons:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Iron accumulation—common or many, distinct or prominent masses

Texture—loamy fine sand, loamy sand, or sand
Clay content—5 to 10 percent
Structure—subangular blocky or massive
Effervescence—none or slight
Reaction—slightly alkaline or moderately alkaline

Bahem Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Terraces
Parent material: Kind—loess and alluvium; source—mixed
Slope range: 1 to 12 percent
Elevation: 4,150 to 4,280 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Xeric Haplocalcids

Typical Pedon

Ap—0 to 10 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; few fine tubular pores; strongly effervescent; slightly alkaline; clear smooth boundary.
Bk1—10 to 16 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; gradual wavy boundary.
Bk2—16 to 38 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; strongly effervescent; 5 percent durinodes; moderately alkaline; gradual wavy boundary.
Bk3—38 to 47 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine tubular pores; strongly effervescent; moderately alkaline; gradual wavy boundary.
Bk4—47 to 60 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine tubular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Bahem silt loam, 1 to 4 percent slopes
Location in survey area: About 2 miles east of the Kasota Road exit from U.S. Interstate Highway 84; in the SW1/4NE1/4SE1/4 of sec. 5, T. 10 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—7 to 12 inches

Particle-size control section:
Clay content—10 to 18 percent

A horizon:
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Texture—silt loam or very fine sandy loam
Calcium carbonate equivalent—15 to 25 percent in the upper part and 5 to 15 percent in the lower part
Durinode content—0 to 10 percent

Barrymore Series

Depth class: Moderately deep to basalt
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Terraces
Parent material: Kind—alluvium and loess; source—mixed
Slope range: 1 to 4 percent
Elevation: 4,150 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Xeric Haplocalcids

Typical Pedon

A—0 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine tubular pores; neutral; clear smooth boundary.
Bw1—5 to 12 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist;

weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many fine tubular pores; neutral; gradual wavy boundary.

Bw2—12 to 17 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; slightly alkaline; clear smooth boundary.

Bk—17 to 23 inches; light gray (10YR 7/2) silt loam, light brownish gray (10YR 6/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2R—23 inches; lime-coated basalt.

Typical Pedon Location

Map unit in which located: Barrymore-Starbuck complex, 1 to 4 percent slopes

Location in survey area: About 2.5 miles northwest of Hynes railroad siding; in the SE1/4NE1/4SW1/4 of sec. 18, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—20 to 40 inches
Depth to the calcic horizon—15 to 20 inches

Particle-size control section:
Clay content—10 to 18 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4

Bw horizon:
Value—5 or 6 dry
Chroma—3 or 4
Clay content—14 to 20 percent

Bk horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 to 4
Clay content—8 to 18 percent
Gravel content—0 to 5 percent
Calcium carbonate equivalent—15 to 25 percent

Decker Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,140 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Haplocalcids

Typical Pedon

Ap—0 to 10 inches; pale brown (10YR 6/3) loam, brown (10YR 5/3) crushed, dark grayish brown (10YR 4/2) moist; very weak very fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine, medium, and coarse roots; many very fine irregular pores and common very fine tubular pores; few wormholes; slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bw—10 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak coarse and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots and few fine roots; common very fine and few fine tubular pores; wormholes filled with soil material from Bk1 horizon; slightly effervescent; very few veins and spots of lime; moderately alkaline; abrupt smooth boundary.

Bk1—15 to 23 inches; very pale brown (10YR 8/2) loam, light brownish gray (10YR 6/2) moist; weak fine and medium subangular blocky structure parting to very weak thin and medium platy; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine tubular pores; strongly effervescent; strongly alkaline; clear smooth boundary.

Bk2—23 to 29 inches; very pale brown (10YR 8/2) loam, light brownish gray (10YR 6/2) moist; very weak medium subangular blocky structure parting to very weak thin and medium platy; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; some roots matted on krotovinas; few very fine tubular pores in matrix; about 10 percent firm cicada krotovinas; strongly effervescent; common splotches of lime in matrix and coatings of lime in krotovinas; strongly alkaline; clear wavy boundary.

2Bk3—29 to 35 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; few fine distinct dark brown and brown (7.5YR 3/2 and 4/4) redoximorphic concentrations; weak very thin and thin platy structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; few small pockets or lenses of sand; few firm cicada krotovinas; strongly effervescent; few medium veins and fine spots of lime; moderately alkaline; abrupt smooth boundary.

2BC—35 to 51 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; few fine distinct dark brown and brown (7.5YR 3/2 and 4/4) redoximorphic concentrations; weak very thin and thin platy structure; slightly hard, friable (upper 0.5 inch is firm), slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; common 0.25- to 1-inch-thick lenses of very fine sand; slightly effervescent; moderately alkaline; abrupt smooth boundary.

2C—51 to 65 inches; light brownish gray (10YR 6/2) and very pale brown (10YR 8/2) stratified sand to fine sand, dark grayish brown (10YR 4/2) and brown (10YR 5/3) moist; few fine redoximorphic concentrations; single grain; slightly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Decker loam, 0 to 2 percent slopes

Location in survey area: About 1 mile south of the sugar factory in Paul, Idaho; 33 feet south and 57 feet east of the northwest corner of the SW1/4 of sec. 34, T. 9 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—11 to 20 inches
Depth to the water table—30 to 50 inches in April through October

Particle-size control section:
Clay content—12 to 18 percent

Ap horizon:
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3
Texture—loam or fine sandy loam
Salinity—0 to 16 millimeters per centimeter

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Effervescence—none or slight

Bk horizon:
Value—7 or 8 dry, 5 or 6 moist
Chroma—2 or 3
Texture—loam or silt loam
Effervescence—moderate or strong
Calcium carbonate equivalent—15 to 25 percent in the upper part and 5 to 15 percent in the lower part

Taxadjunct Features

The Decker soils in this survey area have 12 to 18 percent clay in the particle-size control section. The Decker series has 18 to 25 percent clay.

Dolman Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 4 percent
Elevation: 4,150 to 4,350 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Xeric Haplodurids

Typical Pedon

A—0 to 4 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine tubular pores; neutral; clear smooth boundary.

Bw—4 to 14 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; neutral; clear smooth boundary.

Bkq—14 to 21 inches; light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; strongly effervescent; 20 percent durinodes; slightly alkaline; abrupt smooth boundary.

2Bkqm—21 to 38 inches; duripan; continuous indurated silica and calcium carbonate laminar cap 0.25 to 0.5 inch thick; extremely hard; extremely gravelly silt loam lenses in the lower part; violently effervescent; clear smooth boundary.

3Bk—38 to 60 inches; very pale brown (10YR 7/3) very fine sand, light yellowish brown (10YR 6/4) moist; massive; loose, nonsticky and nonplastic; few fine irregular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Dolman silt loam, 1 to 4 percent slopes
Location in survey area: About 1.5 miles northeast of the Hynes railroad siding; in the NE1/4SE1/4SW1/4 of sec. 22, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—14 to 24 inches
Depth to the duripan—20 to 40 inches

Particle-size control section:
Gravel content—0 to 10 percent
Clay content—12 to 18 percent

A horizon:
Value—5 or 6 dry
Chroma—2 to 4
Gravel content—0 to 10 percent

Bw horizon:
Value—3 or 4 moist
Gravel content—0 to 5 percent
Clay content—12 to 16 percent

Bkq horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Clay content—12 to 24 percent
Calcium carbonate equivalent—5 to 15 percent

3Bk horizon:
Texture—stratified gravel to sand

Eoyote Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,140 to 4,175 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids

Typical Pedon

Ap—0 to 8 inches; pale brown (10YR 6/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure: slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; slightly effervescent; slightly alkaline; gradual wavy boundary.

Bk1—8 to 18 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak moderate subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; common fine tubular pores; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bk2—18 to 36 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bk3—36 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Eoyote fine sandy loam, 0 to 2 percent slopes
Location in survey area: About 3 miles northwest of Paul, Idaho; in the SW1/4SW1/4SE1/4 of sec. 18, T. 9 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—8 to 12 inches

Particle-size control section:
Clay content—10 to 18 percent

A horizon:
Value—4 or 5 moist
Chroma—2 or 3

Bk horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 or 3
Reaction—moderately alkaline or strongly alkaline
Effervescence—strong or violent
Calcium carbonate equivalent—15 to 30 percent
Texture—very fine sandy loam, fine sandy loam, or sandy loam

Garsox Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Position on landscape: Terraces
Parent material: Kind—alluvium: source—mixed
Slope range: 0 to 2 percent
Elevation: 4,140 to 4,150 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Aquic Natrargids

Typical Pedon

A—0 to 2 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to weak very thin platy; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine irregular pores; slightly alkaline; abrupt smooth boundary.

Btn—2 to 5 inches; gray (10YR 6/1) clay loam, dark gray (10YR 4/1) moist; common bleached grains; weak and moderate coarse prismatic structure parting to weak coarse columnar; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; few very fine tubular pores; few faint patchy or nearly continuous clay films; strongly alkaline; clear smooth boundary.

Btkn—5 to 10 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; weak and moderate coarse prismatic structure parting to moderate medium subangular blocky; prisms are continuous from the Bt horizon through the Btk horizon; hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; few faint continuous clay films on faces of peds and in pores; slightly effervescent; strongly alkaline; clear smooth boundary.

Bk1—10 to 16 inches; very pale brown (10YR 8/2) loam, light gray (10YR 7/2) moist; very weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots and few fine and medium roots; common krotovinas 0.5 inch in diameter filled with soil material from the Btk horizon; moderately effervescent; very strongly alkaline; clear smooth boundary.

Bk2—16 to 25 inches; light gray (10YR 7/2) sandy loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; moderately effervescent; common fine veins of lime; very strongly alkaline; clear smooth boundary.

Bk3—25 to 36 inches; light gray (10YR 7/2) loamy fine sand, grayish brown (10YR 5/2) moist; few fine distinct masses of iron depletion that are dark brown (7.5YR 3/2) moist and many fine and medium distinct masses of iron depletion in the lower 3 inches; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots and very few fine and medium roots; moderately effervescent; strongly alkaline; abrupt smooth boundary.

Bk4—36 to 44 inches; very pale brown (10YR 8/2) fine sandy loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; very few fine roots; moderately effervescent; strongly alkaline; abrupt smooth boundary.

Bkq—44 to 60 inches; light gray (10YR 7/2) loamy fine sand and thin strata of silt loam and sandy loam, light brownish gray (10YR 6/2) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; very few fine roots; discontinuous very weakly cemented lenses; moderately effervescent; strongly alkaline.

Typical Pedon Location

Map unit in which located: Garsox silt loam, 0 to 2 percent slopes
Location in survey area: About 1.5 miles west of Heyburn, Idaho; 100 feet north and 200 feet west of the southeast corner of the SW1/4NE1/4 of sec. 30, T. 10 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the natric horizon—1 to 4 inches
Depth to the calcic horizon—7 to 20 inches
Depth to the water table—24 to 45 inches in April through October

A horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry, 2 or 3 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline

Btn and Btkn horizons:
Value—6 or 7 dry, 4 or 5 moist
Chroma—1 or 2
Clay content—27 to 35 percent
Texture—clay loam or silty clay loam

Reaction—strongly alkaline or very strongly alkaline
Sodium adsorption ratio—13 to 25

Bk and Bkq horizons:
Value—7 or 8 dry, 5 to 7 moist
Chroma—0 to 2 moist
Texture—stratified loam, sandy loam, fine sandy loam, or loamy fine sand
Reaction—strongly alkaline or very strongly alkaline
Calcium carbonate equivalent—15 to 25 percent in the upper part and 5 to 20 percent in the lower part

Hoosegow Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Hills
Parent material: Kind—alluvium; source—mixed
Slope range: 6 to 25 percent
Elevation: 4,200 to 5,075 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 46 to 48 degrees F
Frost-free period: 110 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Xeric Haplargids

Typical Pedon

A—0 to 4 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine tubular pores; neutral; clear smooth boundary.

BA—4 to 9 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; neutral; gradual wavy boundary.

Bt—9 to 30 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, sticky and plastic; common fine roots; common fine tubular pores; few distinct clay films on faces of peds and in pores; neutral; gradual wavy boundary.

BC—30 to 48 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; neutral; gradual wavy boundary.

C—48 to 60 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine irregular pores; slightly effervescent in places; slightly alkaline.

Typical Pedon Location

Map unit in which located: Hoosegow loam, 6 to 25 percent slopes
Location in survey area: About 5.6 miles northwest of Norland, Idaho; in the NE1/4NE1/4SE1/4 of sec. 28, T. 6 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches

Particle-size control section:
Clay content—20 to 27 percent

A horizon:
Value—4 or 5 dry, 3 or 4 moist
Chroma—3 or 4

Bt horizon:
Value—5 or 6 dry
Chroma—3 or 4
Texture—loam or sandy clay loam

Hynes Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,150 to 4,180 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocalcids

Typical Pedon

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak thin platy structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many fine tubular pores; slightly alkaline; clear smooth boundary.

Bk—4 to 16 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

Bkq—16 to 30 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; massive; hard, firm, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; 25 percent durinodes; violently effervescent; moderately alkaline; abrupt smooth boundary.

B´k—30 to 41 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; moderate thin platy structure; hard, firm, slightly sticky and slightly plastic; few fine roots; few very fine irregular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

2C1—41 to 53 inches; very pale brown (10YR 7/3) silty clay loam, light yellowish brown (10YR 6/4) moist; moderate medium platy structure; very hard, firm, moderately sticky and moderately plastic; few very fine irregular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

2C2—53 to 64 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine irregular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Hynes silt loam, 0 to 2 percent slopes

Location in survey area: About 800 feet west of the Hynes railroad siding; about 2,300 feet north and 800 feet west of the southeast corner of sec. 29, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the 2C horizon—40 to 60 inches
Depth to the calcic horizon—6 to 20 inches

Particle-size control section:
Clay content—6 to 15 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bk horizon:
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline

Bkq and B´k *horizons:*
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 or 3
Durinode content—20 to 30 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—15 to 30 percent

2C1 horizon:
Value—6 to 8 dry, 5 or 6 moist
Chroma—3 or 4
Texture—silt loam or silty clay loam
Clay content—24 to 34 percent, decreasing with depth
Calcium carbonate equivalent—10 to 30 percent

2C2 horizon:
Value—6 to 8 dry, 5 or 6 moist
Chroma—3 or 4
Texture—silt loam or very fine sandy loam
Clay content—5 to 12 percent
Calcium carbonate equivalent—5 to 15 percent

Kecko Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 8 percent
Elevation: 4,140 to 4,300 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids

Typical Pedon

Ap—0 to 4 inches; brown (10YR 5/3) loamy fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and medium roots; many very fine and common fine irregular pores; neutral; clear smooth boundary.

Bw1—4 to 9 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; common fine tubular pores; neutral; gradual wavy boundary.

Bw2—9 to 21 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; neutral; gradual wavy boundary.

Bk1—21 to 26 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic;

common very fine and fine roots; common fine tubular pores; strongly effervescent; moderately alkaline; clear wavy boundary.

Bk2—26 to 42 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; weak thin platy structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; clear wavy boundary.

2C—42 to 62 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Vining-Kecko-Rock outcrop complex, 1 to 8 percent slopes

Location in survey area: About 1 mile southwest of the Hawly railroad siding; in the NE1/4NE1/4SW1/4 of sec. 18, T. 8 S. R. 27 E.

Range in Characteristics

Profile:
Depth to the 2C horizon—more than 40 inches
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—20 to 40 inches

Particle-size control section:
Clay content—10 to 18 percent
Gravel content—0 to 5 percent

Ap horizon:
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3
Texture—loamy fine sand or fine sandy loam
Reaction—neutral or slightly alkaline

Bw horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—fine sandy loam, very fine sandy loam, loam, or sandy loam

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—loam, fine sandy loam, sandy loam, or very fine sandy loam
Calcium carbonate equivalent—15 to 25 percent

2C horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3 dry, 3 or 4 moist
Texture—stratified sand to silt loam
Calcium carbonate equivalent—5 to 15 percent

McCain Series

Depth class: Moderately deep to basalt
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Convex positions on terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 6 percent
Elevation: 4,200 to 4,650 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Petronodic Xeric Calciargids

Typical Pedon

A—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine tubular pores; neutral; abrupt smooth boundary.

Bw—3 to 6 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; slightly alkaline; clear smooth boundary.

Bt1—6 to 15 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; common fine tubular pores; few faint clay films on faces of peds and in pores; slightly alkaline; clear smooth boundary.

Bt2—15 to 22 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine roots; common fine tubular pores; common faint clay films on faces of peds and in pores; slightly alkaline; clear smooth boundary.

Bk—22 to 28 inches; very pale brown (10YR 8/2) silt loam, light yellowish brown (10YR 6/4) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

2R—28 inches; lime-coated basalt.

Typical Pedon Location

Map unit in which located: Power-McCain complex, 1 to 6 percent slopes

Location in survey area: About 2.7 miles northwest of

"The Crater;" in the SE1/4NW1/4SE1/4 of sec. 30, T. 8 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—20 to 40 inches
Depth to the calcic horizon—12 to 25 inches

Particle-size control section:
Clay content—18 to 30 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4
Texture—silt loam or silty clay loam
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or loam
Gravel content—0 to 10 percent
Calcium carbonate equivalent—15 to 30 percent

Taxadjunct Features

The McCain soils in this survey do not have 20 percent nodules or more; thus, they do not meet the criteria for the Petronodic subgroup.

McPan Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Convex positions on terraces
Parent material: Kind—silty alluvium; source—mixed
Slope range: 1 to 20 percent
Elevation: 4,300 to 4,700 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 49 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Xeric Argidurids

Typical Pedon

A—0 to 6 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; neutral; clear smooth boundary.

Bt1—6 to 10 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; few distinct clay films on faces of peds and in pores; neutral; gradual wavy boundary.

Bt2—10 to 21 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common fine tubular pores; common distinct clay films on faces of peds and in pores; neutral; clear wavy boundary.

Bkq—21 to 27 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 10 percent gravel-sized duripan fragments; strongly effervescent (15 percent calcium carbonate equivalent); moderately alkaline; abrupt wavy boundary.

Bkqm—27 to 28 inches; very pale brown (10YR 7/3), indurated, calcium-carbonate- and silica-cemented duripan; silica cap less than 0.25 inch thick; 10 percent gravel and 10 percent cobbles; gravel and cobbles cemented in the duripan; violently effervescent; abrupt wavy boundary.

2R—28 inches; basalt.

Typical Pedon Location

Map unit in which located: Paulville-McPan complex, 1 to 4 percent slopes
Location in survey area: About 1.4 miles southwest of Kimama, Idaho; in the SW1/4 NE1/4NE1/4 of sec. 30, T. 6 S., R. 24 E.

Range in Characteristics

Profile:
Depth to the duripan—20 to 39 inches
Depth to bedrock—21 to 40 inches
Depth to the calcic horizon—15 to 30 inches

Particle-size control section:
Clay content—20 to 32 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bkq horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Gravel content—0 to 5 percent
Calcium carbonate equivalent—5 to 10 percent

Bkqm horizon:
Thickness of laminar caps—1/8 to 1/2 inch
Distance between laminar caps—0 to 2 inches
Thickness of the duripan—1/8 inch to 2 inches

Minveno Series

Depth class: Shallow to a duripan
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Terraces and hillslopes
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 8 percent
Elevation: 4,180 to 4,800 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 140 days

Taxonomic class: Loamy, mixed, superactive, mesic, shallow Xeric Haplodurids

Typical Pedon

A—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; slightly alkaline; clear smooth boundary.

Bw—2 to 11 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; slightly alkaline; gradual wavy boundary.

Bk—11 to 19 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; weak fine roots; weak very fine tubular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—19 to 37 inches; white (10YR 8/2), indurated, calcium-carbonate- and silica-cemented duripan; massive; extremely hard, extremely firm; many continuous silica-cemented laminations throughout; 20 percent gravel cemented in duripan; violently effervescent; abrupt wavy boundary.

2R—37 inches; basalt.

Typical Pedon Location

Map unit in which located: Minveno silt loam, 1 to 8 percent slopes
Location in survey area: About 4.9 miles northwest of Norland, Idaho; in the SE1/4SE1/4SE1/4 of sec. 3, T. 7 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—20 to 40 inches
Depth to the calcic horizon—7 to 15 inches
Depth to the duripan—10 to 20 inches

Particle-size control section:
Clay content—10 to 18 percent
Gravel content—0 to 10 percent

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or loam
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—10 to 15 percent

Owsel Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 4 percent
Elevation: 4,180 to 4,200 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Durinodic Xeric Haplargids

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and medium roots; common very fine tubular pores; neutral; clear smooth boundary.

Bt1—5 to 9 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; common fine tubular pores; very few faint clay films on faces of peds and in pores; neutral; gradual wavy boundary.

Bt2—9 to 15 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common fine and medium roots; few very fine tubular pores; few distinct clay films on faces of peds and in pores; slightly effervescent in places; slightly alkaline; abrupt smooth boundary.

Bkq1—15 to 28 inches; very pale brown (10YR 8/2) silt loam, very pale brown (10YR 7/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 30 percent durinodes; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkq2—28 to 37 inches; very pale brown (10YR 8/2) silt loam, very pale brown (10YR 7/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few very fine tubular pores; 15 percent durinodes; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bkq3—37 to 54 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine irregular pores; 10 percent durinodes; violently effervescent; moderately alkaline; gradual wavy boundary.

Bk—54 to 68 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; weak very fine irregular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Owsel silt loam, 1 to 4 percent slopes

Location in survey area: About 1.1 miles north of the Hynes railroad siding; in the NE1/4SW1/4NW1/4 of sec. 21, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to calcium carbonate—10 to 40 inches

A horizon:
Value—5 or 6 dry
Chroma—2 to 4
Reaction—neutral or slightly alkaline

Bt horizon:
Value—4 to 6 dry
Chroma—2 to 4
Texture—silt loam or silty clay loam
Clay content—24 to 35 percent

Bkq horizon:
Value—6 to 8
Chroma—2 or 3
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—5 to 15 percent

Paulville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Concave areas of terraces and toeslopes
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 4 percent
Elevation: 4,240 to 4,700 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Xeric Calciargids

Typical Pedon

A—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and common fine tubular pores; neutral; clear smooth boundary.

Bt1—6 to 16 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and few fine tubular pores; common distinct clay films on faces of peds and in pores; neutral; clear smooth boundary.

Bt2—16 to 31 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine tubular pores; few faint clay films on faces of peds and in pores; slightly alkaline; clear smooth boundary.

Bk—31 to 60 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; hard, friable, nonsticky and nonplastic; common fine roots; common very fine tubular pores; strongly effervescent; few fine and medium veins and soft masses of lime; moderately alkaline.

Typical Pedon Location

Map unit in which located: Paulville-McPan complex, 1 to 4 percent slopes

Location in survey area: About 2.5 miles south of "The Crater;" in the SW1/4SW1/4NW1/4 of sec. 6, T. 8 S., R. 23 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—15 to 32 inches

Ap horizon:
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—silt loam, clay loam, or loam
Clay content—24 to 31 percent

Bk horizon:
Value—6 to 8 dry, 5 or 6 moist
Chroma—2 to 4
Texture—silt loam or loam
Calcium carbonate equivalent—15 to 30 percent

Pocatello Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Side slopes of terraces
Parent material: Kind—loess and alluvium; source—mixed
Slope range: 12 to 30 percent
Elevation: 4,150 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-silty, mixed (calcareous), superactive, mesic Xeric Torriorthents

Typical Pedon

A—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; very weak medium and thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular and irregular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

Bk1—4 to 16 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak very coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and few fine roots, many of which are along faces of peds; few very fine tubular pores; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bk2—16 to 38 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; very weak coarse prismatic structure parting to very weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few medium roots concentrated between peds; few very fine tubular pores; 5 percent durinodes; strongly effervescent; moderately alkaline; gradual smooth boundary.

Ck—38 to 66 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline.

Typical Pedon Location

Map unit in which located: Pocatello silt loam, 12 to 30 percent slopes

Location in survey area: About 3.8 miles northwest of Paul, Idaho; 200 feet south and 200 feet west of the northeast corner of the SE1/4NE1/4 of sec. 12, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches

Particle-size control section:
Clay content—5 to 15 percent

A horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Calcium carbonate equivalent—5 to 15 percent
Durinode content—0 to 15 percent
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—5 to 15 percent in the upper part and 10 to 25 percent in the lower part

Ck horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—silt loam or silt
Reaction—slightly alkaline to strongly alkaline
Calcium carbonate equivalent—10 to 20 percent

Portneuf Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Summits and side slopes of terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 8 percent
Elevation: 4,150 to 4,340 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocalcids

Typical Pedon

Ap—0 to 9 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; very weak very fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Bk—9 to 13 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; very weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; few cicada krotovinas in the lower part; strongly effervescent; slightly alkaline; clear smooth boundary.

Bkq1—13 to 27 inches; very pale brown (10YR 8/2) silt loam, light brownish gray (10YR 6/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many dead roots on faces of peds; many very fine tubular pores; common hard, firm or very firm, subrounded cicada nodules; common fine veins and soft masses of lime and coatings of lime in krotovinas; strongly effervescent; moderately alkaline; gradual smooth boundary.

Bkq2—27 to 42 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; very weak medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; dead roots on faces of peds; common very fine tubular pores; common hard, firm or very firm, subrounded cicada nodules; few fine masses and veins of lime; strongly effervescent; moderately alkaline; gradual smooth boundary.

C—42 to 64 inches; very pale brown (10YR 7/3) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Portneuf silt loam, 0 to 1 percent slopes
Location in survey area: About 6 miles west and 3 miles south of Paul, Idaho; 0.75 mile south of U.S. Interstate Highway 84; about 1,500 feet north and 50 feet west of the southeast corner of sec. 8, T. 10 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—6 to 15 inches
Thickness of the calcic horizon—15 to 30 inches

Particle-size control section:
Clay content—6 to 15 percent

Ap horizon:
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3

Bk horizon:
Value—5 to 7 dry, 4 to 6 moist
Chroma—2 or 3
Reaction—slightly alkaline or strongly alkaline
Calcium carbonate equivalent—5 to 10 percent

Bkq horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Reaction—moderately alkaline or strongly alkaline
Calcium carbonate equivalent—15 to 30 percent

C horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Salinity—less than 16 millimhos per centimeter
Reaction—moderately alkaline or strongly alkaline

Power Series

Depth class: Very deep
Drainage class: Well drained

Permeability: Moderately slow
Position on landscape: Summits and side slopes of terraces and concave areas of terraces and toeslopes
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 12 percent
Elevation: 4,150 to 4,800 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Fine-silty, mixed, superactive, mesic Xeric Calciargids

Typical Pedon

A—0 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine tubular pores; neutral; gradual wavy boundary.

Bt1—8 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine tubular pores; few faint clay films on faces of peds and in pores; neutral; clear smooth boundary.

Bt2—17 to 31 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; few faint clay films on faces of peds and in pores; slightly alkaline; gradual wavy boundary.

Bk1—31 to 54 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, nonsticky and nonplastic; few fine roots; few fine irregular pores; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bk2—54 to 61 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine irregular pores; violently effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Power silt loam, 1 to 4 percent slopes
Location in survey area: About 2.5 miles northeast of Hynes railroad siding; in the SE1/4NE1/4SE1/4 of sec. 15, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—15 to 32 inches

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—silt loam or silty clay loam
Clay content—24 to 30 percent
Reaction—neutral or slightly alkaline

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—silt loam or loam
Gravel content—0 to 5 percent
Calcium carbonate equivalent—15 to 30 percent in the upper part and 10 to 20 percent in the lower part

Quincy Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Position on landscape: Terraces
Parent material: Kind—eolian; source—mixed
Slope range: 1 to 8 percent
Elevation: 4,140 to 4,280 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Mixed, mesic Xeric Torripsamments

Typical Pedon

A—0 to 16 inches; brown (10YR 5/3) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common fine roots; few fine irregular pores; slightly alkaline; gradual wavy boundary.

C1—16 to 36 inches; brown (10YR 5/3) loamy sand, very dark grayish brown (10YR 3/2) moist; massive; loose, nonsticky and nonplastic; few fine roots; few fine irregular pores; slightly alkaline; clear smooth boundary.

C2—36 to 70 inches; pale brown (10YR 6/3) loamy fine sand, dark grayish brown (10YR 4/2) moist; massive; loose, nonsticky and nonplastic; few fine roots; few fine irregular pores; slightly alkaline.

Typical Pedon Location

Map unit in which located: Quincy loamy sand, 1 to 8 percent slopes
Location in survey area: About 4,500 feet northwest of Minidoka Dam; in the NE1/4NW1/4NE1/4 of sec. 2, T. 9 S., R. 25 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Reaction—slightly alkaline or moderately alkaline

Particle-size control section:
Texture—loamy sand, loamy fine sand, or sand

A horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3

C horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Rad Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Position on landscape: Summits and side slopes of terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 15 percent
Elevation: 4,180 to 4,480 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocambids

Typical Pedon

A—0 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; neutral; clear smooth boundary.
Bw—5 to 16 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine roots; common very fine and fine tubular pores; slightly alkaline; abrupt smooth boundary.
Bkq1—16 to 24 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; massive; hard, firm, nonsticky and nonplastic; few fine roots; common fine tubular pores; 5 percent durinodes; strongly effervescent; moderately alkaline; gradual wavy boundary.
Bkq2—24 to 34 inches; very pale brown (10YR 7/3) silt loam, grayish brown (10YR 5/3) moist; massive; very hard, firm, nonsticky and nonplastic; few fine tubular pores; 30 percent durinodes; violently effervescent; moderately alkaline; abrupt smooth boundary.
Bk—34 to 62 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic: few fine irregular pores; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Rad silt loam, 1 to 4 percent slopes
Location in survey area: About 4.3 miles northwest of Paul, Idaho; in the SW1/4NW1/4NW1/4 of sec. 14, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon and durinodes—12 to 28 inches

Particle-size control section:
Clay content—6 to 15 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3

Bw horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—2 to 4
Clay content—6 to 15 percent

Bkq horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 or 3
Effervescence—strongly effervescent or violently effervescent
Reaction—moderately alkaline or strongly alkaline
Durinode content—10 to 40 percent, but more than 20 percent in the lower part
Calcium carbonate equivalent—5 to 15 percent in the upper part and 10 to 15 percent in the lower part

Taxadjunct Feature

The Rad soils in this survey area have a calcic horizon.

Schodson Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 1 percent
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Xeric Aquicambids

Typical Pedon

Ap—0 to 9 inches; brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) moist, dark grayish brown (10YR 4/2) crushed and moist; very weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores; 5 percent gravel; very slightly effervescent; moderately alkaline; abrupt smooth boundary.

Bw—9 to 25 inches; brown (10YR 5/3) sandy loam, pale brown (10YR 6/3) crushed, brown (10YR 4/3) moist; very weak medium and coarse subangular blocky structure parting to very weak very fine granular; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores and common very fine tubular pores; 5 percent gravel; noncalcareous except few pores are very slightly effervescent; moderately alkaline; clear smooth boundary.

2C1—25 to 32 inches; pale brown (10YR 6/3) loamy coarse sand, dark grayish brown (10YR 4/2) moist, brown (10YR 4/3) crushed and moist; common fine distinct brown (7.5YR 5/2 and 10YR 4/3) redoximorphic accumulations, dark yellowish brown (10YR 4/4) and dark brown (7.5YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; common very fine tubular pores; 10 percent gravel; moderately alkaline; clear smooth boundary.

3C2—32 to 43 inches; light brownish gray (10YR 6/2) coarse sand, dark grayish brown (10YR 4/2) moist; common coarse distinct brown (7.5YR 5/2 and 10YR 4/3) redoximorphic accumulations, dark yellowish brown (10YR 4/4) and dark brown (7.5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine irregular pores; 7 percent gravel; moderately alkaline; clear smooth boundary.

3C3—43 to 60 inches; gray (10YR 6/1) coarse sand, gray (10YR 5/1) moist; few coarse distinct brown (7.5YR 5/2) redoximorphic concentrations, dark brown (7.5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine irregular pores; 7 percent gravel; slightly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Schodson sandy loam, 0 to 1 percent slopes
Location in survey area: About $^1/_8$ mile west of Rupert, Idaho; 15 feet east of fence and 340 feet north of county road; 1,400 feet northeast of the southwest corner of the SE1/4SE1/4 of sec. 19, T. 9 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the sandy 2C horizon—20 to 40 inches
Depth to redoximorphic features—25 to 40 inches
Depth to the water table—24 to 45 inches in April through October

Particle-size control section:
Clay content—5 to 10 percent
Calcium carbonate equivalent—0 to 5 percent

Ap horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loamy sand or sandy loam
Effervescence—none or slight

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Effervescence—none or very slight

2C and 3C horizons:
Value—6 or 7 dry, 4 or 5 moist
Chroma—1 to 3
Texture—loamy fine sand, loamy coarse sand, or coarse sand

Sluka Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Summits and side slopes of terraces
Parent material: Kind—alluvium; source—mixed

Slope range: 1 to 8 percent
Elevation: 4,150 to 4,450 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-silty, mixed, superactive, mesic Xeric Haplodurids

Typical Pedon

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and common fine tubular pores; slightly effervescent; slightly alkaline; gradual wavy boundary.

Bk—8 to 15 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common fine tubular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

Bkq—15 to 23 inches; light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; hard, firm, nonsticky and nonplastic; few fine roots; common fine tubular pores; 25 percent durinodes; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—23 to 38 inches; duripan; continuous indurated silica and calcium carbonate laminar cap $^{1}/_{16}$ inch thick over light gray (10YR 7/2) silt loam, pale brown (10YR 6/3) moist; very hard, very firm; root mat on surface of laminar cap and few very fine roots along fracture planes; 30 percent durinodes; violently effervescent; moderately alkaline; clear smooth boundary.

2Bk1—38 to 48 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, nonsticky and nonplastic; few fine irregular pores; 10 percent durinodes; violently effervescent; moderately alkaline; gradual wavy boundary.

2Bk2—48 to 62 inches; very pale brown (10YR 7/3) silt loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine irregular pores; 5 percent durinodes; strongly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Sluka silt loam, 1 to 4 percent slopes

Location in survey area: About 1 mile southeast of the Kasota Road exit off U.S. Interstate Highway 84; in the SW1/4NE1/4SE1/4 of sec. 7, T. 10 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—10 to 20 inches
Depth to the duripan—20 to 40 inches

Particle-size control section:
Clay content—12 to 18 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Gravel content—0 to 10 percent
Calcium carbonate equivalent—0 to 10 percent
Reaction—neutral or slightly alkaline

Bkq horizon:
Value—6 to 8 dry, 3 to 6 moist
Chroma—2 or 3
Texture—silt loam or very fine sandy loam
Calcium carbonate equivalent—15 to 20 percent
Durinode content—10 to 40 percent

Bkqm horizon:
Thickness of silica laminations—$^{1}/_{16}$ inch to 2 inches

2Bk horizon:
Calcium carbonate equivalent—10 to 20 percent

Starbuck Series

Depth class: Shallow to basalt
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Summits and side slopes of terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 20 percent
Elevation: 4,150 to 4,400 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids

Typical Pedon

A—0 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; 5 percent gravel; neutral; gradual wavy boundary.

Bw—5 to 15 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; 5 percent gravel; slightly alkaline; abrupt wavy boundary.

2R—15 inches; basalt.

Typical Pedon Location

Map unit in which located: Barrymore-Starbuck complex, 1 to 4 percent slopes

Location in survey area: About 2.5 miles northwest of the Hynes railroad siding; in the SE1/4NW1/4SW1/4 of sec. 18, T. 9 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—12 to 20 inches

Particle-size control section:
Clay content—5 to 18 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Gravel content—0 to 5 percent

Bw horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4
Gravel content—0 to 5 percent

Taunton Series

Depth class: Moderately deep to a duripan
Drainage class: Well drained
Permeability: Moderate
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 1 to 4 percent
Elevation: 4,160 to 4,360 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Xeric Haplodurids

Typical Pedon

A—0 to 4 inches; brown (10YR 5/3) loam, dark yellowish brown (10YR 3/4) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine, fine, and medium roots; common fine tubular pores; neutral; clear smooth boundary.

Bw1—4 to 12 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; slightly alkaline; clear smooth boundary.

Bw2—12 to 19 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 5 percent gravel-sized duripan fragments; slightly effervescent in places; slightly alkaline; clear smooth boundary.

Bkq—19 to 25 inches; light gray (10YR 7/2) gravelly loam, very pale brown (10YR 7/4) moist; massive; very hard, firm, nonsticky and nonplastic; few medium roots; few fine tubular pores; 15 percent gravel; 10 percent gravel-sized duripan fragments; violently effervescent; moderately alkaline; abrupt smooth boundary.

Bkqm—25 to 29 inches; white (10YR 8/2), indurated, calcium-carbonate- and silica-cemented duripan, very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; many continuous silica-cemented laminations throughout; violently effervescent.

Typical Pedon Location

Map unit in which located: Taunton-Paulville complex, 1 to 4 percent slopes

Location in survey area: About 3.8 miles northeast of Kimama, Idaho; in the SW1/4NW1/4NW1/4 of sec. 19, T. 6 S., R. 23 E.

Range in Characteristics

Profile:
Depth to the calcic horizon—10 to 20 inches
Depth to the duripan—20 to 40 inches
Clay content—7 to 18 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—loam or fine sandy loam

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—silt loam or loam
Reaction—neutral or slightly alkaline

Bkq horizon:
Value—6 to 8 dry, 4 to 7 moist
Chroma—2 to 4

Texture—silt loam or gravelly loam
Gravel content—0 to 25 percent
Calcium carbonate equivalent—15 to 25 percent

Tindahay Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 1 percent
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Sandy, mixed, mesic Xeric Torriorthents

Typical Pedon

Ap—0 to 8 inches; brown (10YR 5/3) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine tubular pores; 5 percent gravel; slightly alkaline; abrupt smooth boundary.

A—8 to 18 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots and few fine roots; many very fine tubular pores; 5 percent gravel; slightly alkaline; clear smooth boundary.

AC—18 to 23 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; 5 percent gravel; moderately alkaline; clear smooth boundary.

C—23 to 27 inches; grayish brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; slightly hard, very friable, nonsticky and nonplastic; few fine and very fine roots; common very fine irregular pores; 5 percent gravel; moderately alkaline; clear smooth boundary.

Ck—27 to 60 inches; pale brown (10YR 6/3) gravelly sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; few very fine irregular pores; 25 percent gravel; coatings of lime on underside of gravel; slightly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Tindahay sandy loam, 0 to 1 percent slopes
Location in survey area: About 2 miles northeast of Rupert, Idaho; in the SW1/4NW1/4NW1/4 of sec. 15, T. 9 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches

Ap horizon:
Value—5 or 6 dry, 2 to 4 moist
Chroma—2 or 3
Texture—sandy loam or loamy sand
Reaction—neutral or slightly alkaline
Gravel content—0 to 5 percent

A and AC horizons:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—neutral or slightly alkaline
Gravel content—0 to 5 percent
Clay content—12 to 18 percent

C and Ck horizons:
Value—5 to 7 dry, 3 or 4 moist
Chroma—1 to 3
Reaction—slightly alkaline or moderately alkaline
Gravel content—5 to 25 percent
Clay content—0 to 8 percent

Torriorthents

Depth class: Shallow to very deep to bedrock
Drainage class: Well drained or somewhat excessively drained
Permeability: Moderately slow to moderately rapid
Position on landscape: Breaks and side slopes of calderas
Parent material: Kind—colluvium; source—mixed
Slope range: 40 to 75 percent
Elevation: 4,220 to 4,800 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 46 to 49 degrees F
Frost-free period: 110 to 140 days

Taxonomic class: Torriorthents

Reference Pedon

A—0 to 46 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist;

single grain; soft, very friable, nonsticky and nonplastic; many very fine to coarse roots; few fine tubular pores; neutral; clear smooth boundary.

C—46 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; few fine tubular pores; neutral.

Reference Pedon Location

Map unit in which located: Rock outcrop-Torriorthents complex, very steep

Location in survey area: About 500 feet northwest of “The Crater;” in the SE1/4NW1/4SE1/4 of sec. 30, T. 8 S., R. 22 E.

Range in Characteristics

Profile:
Depth to bedrock—10 to 60 inches or more

Particle-size control section:
Clay content—10 to 16 percent

A horizon:
Value—4 to 6 dry, 2 to 4 moist
Chroma—1 to 3

C horizon:
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 or 3
Texture—sandy loam, silt loam, or clay loam
Clay content—10 to 32 percent

Unkee Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Very slow
Position on landscape: Playas and terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 1 percent
Elevation: 4,140 to 4,420 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Fine, smectitic, mesic Chromic Haplotorrerts

Typical Pedon

Oe—1 inch to 0; moderately decomposed plant roots.

A—0 to 7 inches; light brownish gray (10YR 6/2) clay loam, grayish brown (10YR 5/2) moist; strong fine to medium subangular blocky structure; hard, firm, sticky and plastic; many very fine and medium roots; few fine and medium tubular pores; cracks 0.75 to 1.0 inch wide and about 6 to 8 inches apart; slightly effervescent; moderately alkaline; gradual wavy boundary.

Bss1—7 to 46 inches; light brownish gray (10YR 6/2) clay, grayish brown (10YR 5/2) moist; moderate medium angular wedge-shaped and blocky peds and irregular vertical fractures; many slickensides 4 to 5 inches apart; extremely hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; 5 percent gravel; cracks 0.25 to 0.75 inch wide and about 4 to 6 inches apart; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bss2—46 to 65 inches; light brownish gray (10YR 6/2) clay, grayish brown (10YR 5/2) moist; moderate coarse angular wedge-shaped blocky peds; many slickensides 4 to 5 inches apart; extremely hard, very firm, very sticky and very plastic; few fine tubular pores; 5 percent gravel; slightly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Unkee clay loam, 0 to 1 percent slopes

Location in survey area: About 3.8 miles north of Norland, Idaho; about 1,400 feet west and 100 feet south of the northeast corner of sec. 5, T. 7 S., R. 23 E.

Range in Characteristics

Profile:
Period of ponding—February and March
Depth to bedrock—more than 60 inches

Particle-size control section:
Clay content—40 to 60 percent
Calcium carbonate equivalent—2 to 10 percent

A horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3

Bss horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—silty clay or clay
Reaction—slightly alkaline or moderately alkaline
Effervescence—slight or moderate

2C horizon (where present):
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—silty clay loam or silt loam
Reaction—moderately alkaline or strongly alkaline

Vining Series

Depth class: Moderately deep to basalt
Drainage class: Well drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—loess and alluvium; source—mixed
Slope range: 1 to 8 percent
Elevation: 4,150 to 4,300 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids

Typical Pedon

A—0 to 5 inches; brown (10YR 5/3) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine roots; few fine irregular pores; neutral; clear smooth boundary.
Bw1—5 to 10 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; neutral; gradual wavy boundary.
Bw2—10 to 23 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; neutral; abrupt smooth boundary.
2R—23 inches; basalt.

Typical Pedon Location

Map unit in which located: Vining sandy loam, 1 to 8 percent slopes
Location in survey area: About 6,000 feet northwest of Acequia, Idaho; in the SE1/4SW1/4SE1/4 of sec. 35, T. 8 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—20 to 40 inches
Clay content—7 to 18 percent

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loamy sand or sandy loam
Reaction—neutral or slightly alkaline

Bw horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—fine sandy loam or sandy loam
Reaction—neutral or slightly alkaline

Wodskow Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately rapid
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 2 percent
Elevation: 4,145 to 4,160 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Coarse-loamy, mixed, superactive, mesic Aquic Haplocalcids

Typical Pedon

Ap—0 to 8 inches; grayish brown (10YR 5/2) sandy loam, brown (10YR 5/3) crushed, dark grayish brown (10YR 4/2) moist; very weak medium and fine subangular blocky structure parting to very weak very fine granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores and common very fine tubular pores; slightly effervescent; slightly alkaline; abrupt smooth boundary.
A—8 to 12 inches; grayish brown (10YR 5/2) sandy loam, brown (10YR 5/3) crushed, dark grayish brown (10YR 4/2) moist; very weak medium and fine subangular blocky structure parting to very weak fine granular; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores and common very fine tubular pores; slightly alkaline; abrupt smooth boundary.
Bk1—12 to 20 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; few fine and medium distinct brown (10YR 5/3) redoximorphic concentrations, dark brown (7.5YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine and few fine tubular pores; very slightly effervescent; few fine spots and veins of lime; slightly alkaline; clear smooth boundary.
Bk2—20 to 28 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; few fine

distinct brown (10YR 5/3) redoximorphic concentrations, dark brown (7.5YR 3/2) moist; very weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular and tubular pores; few worm channels; very slightly effervescent; few fine veins of lime mainly in the upper 2 inches; slightly alkaline; clear smooth boundary.

2Bk3—28 to 34 inches; white (10YR 8/1) loam, brownish gray (10YR 6/2) moist; few fine distinct pale brown (10YR 6/3) redoximorphic concentrations, brown (10YR 5/3) and yellowish brown (10YR 4/4) moist; very weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; krotovinas of soil material from horizon above 0.5 to 0.8 inch in diameter; strongly effervescent; common fine veins and splotches of lime; moderately alkaline; clear smooth boundary.

3Bk4—34 to 40 inches; light gray (10YR 7/1) sandy loam, grayish brown (10YR 5/2) moist; few fine and medium distinct grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2) redoximorphic concentrations, dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) moist; very weak medium and coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 7 percent firm cicada krotovinas; strongly effervescent; very few fine veins and splotches of lime; moderately alkaline; clear smooth boundary.

4BC—40 to 55 inches; light gray (10YR 7/2) loamy fine sand, grayish brown (10YR 5/2) moist; few fine and medium distinct redoximorphic concentrations, dark brown (7.5YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; discontinuous lenses of very weakly cemented sandy loam about 0.5 inch thick; slightly effervescent; moderately alkaline; clear smooth boundary.

5C—55 to 60 inches; coarse sand; single grain; loose, nonsticky and nonplastic.

Typical Pedon Location

Map unit in which located: Wodskow sandy loam, 0 to 2 percent slopes

Location in survey area: About 0.5 mile south of Rupert, Idaho; 390 feet east and 511 feet north of the southwest corner of the SE1/4NE1/4 of sec. 32, T. 9 S., R. 24 E.

Range in Characteristics

Profile:
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—9 to 15 inches
Depth to the sandy 4BC horizon—more than 40 inches
Depth to the water table—30 to 50 inches in April through October

Ap horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline
Effervescence—none or slight
Salinity—0 to 16 millimhos per centimeter

Bk horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 or 3
Texture—sandy loam or very fine sandy loam
Clay content—10 to 18 percent
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—5 to 10 percent

2Bk and 3Bk horizons:
Value—7 or 8 dry, 5 or 6 moist
Chroma—1 moist, 2 dry
Texture—sandy loam, loam, or very fine sandy loam
Clay content—5 to 18 percent
Calcium carbonate equivalent—5 to 15 percent

4BC and 5C horizons:
Texture—coarse sand, fine sand, or loamy fine sand
Clay content—0 to 7 percent
Effervescence—none or slight
Calcium carbonate equivalent—0 to 10 percent

Woozle Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Position on landscape: Terraces
Parent material: Kind—alluvium; source—mixed
Slope range: 0 to 1 percent
Elevation: 4,140 to 4,250 feet
Average annual precipitation: 8 to 10 inches
Average annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 140 days

Taxonomic class: Fine-loamy, mixed, superactive, mesic Xeric Calciargids

Typical Pedon

Ap—0 to 10 inches; brown (10YR 5/3) loam, pale brown (10YR 6/3) crushed and dry, dark brown

(10YR 3/3) moist, dark grayish brown (10YR 4/2) crushed and moist; weak very fine subangular blocky structure parting to very weak very fine granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and common fine tubular pores; common worm channels and casts; slightly alkaline; abrupt smooth boundary.

Bt—10 to 21 inches; brown (10YR 5/3) loam, pale brown (10YR 6/3) crushed and dry, dark brown (10YR 3/3) moist, brown (10YR 4/3) crushed and moist; weak medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and few fine tubular pores; few worm channels and casts; common faint clay films on faces of peds and in pores; noneffervescent matrix with some worm channels filled with light gray strongly effervescent material; slightly alkaline; abrupt smooth boundary.

2Bk1—21 to 35 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine tubular pores; few krotovinas; strongly effervescent; few fine veins and soft masses of lime; moderately alkaline; clear smooth boundary.

3Bk2—35 to 42 inches; very pale brown (10YR 8/2) loam, pale brown (10YR 6/3) moist; very weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; few rounded krotovinas; strongly effervescent; few fine and medium veins and soft masses of lime; moderately alkaline; abrupt smooth boundary.

4Bk3—42 to 47 inches; light gray (10YR 7/2) loamy fine sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores and few very fine tubular pores; common worm channels and casts; strongly effervescent; few veins of lime; moderately alkaline; clear smooth boundary.

5C—47 to 60 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many irregular pores; slightly effervescent; moderately alkaline.

Typical Pedon Location

Map unit in which located: Woozle loam, 0 to 1 percent slopes

Location in survey area: About 1 mile east and 2 miles north of the sugar factory in Paul, Idaho; 290 feet north and 660 feet west of the southeast corner of the NE1/4 of sec. 15, T. 9 S., R. 23 E.

Range in Characteristics

Profile:
Depth to sand—40 to 60 inches
Depth to bedrock—more than 60 inches
Depth to the calcic horizon—15 to 30 inches

Particle-size control section:
Clay content—24 to 32 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Texture—loam or fine sandy loam
Reaction—neutral or slightly alkaline

Bt horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—2 or 3
Reaction—slightly alkaline or moderately alkaline

Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—1 to 3
Texture—silt loam, loam, clay loam, or silty clay loam
Reaction—slightly alkaline or moderately alkaline
Calcium carbonate equivalent—15 to 30 percent in the 2Bk and 3Bk horizons and 5 to 15 percent in the 4Bk horizon

C horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—1 or 2
Texture—fine sand, sandy loam, loamy fine sand, or gravelly sand
Clay content—0 to 5 percent
Gravel content—0 to 20 percent
Reaction—slightly alkaline or moderately alkaline

Formation of the Soils

By Dal Ames, soil scientist, Natural Resources Conservation Service.

This section describes the major processes of soil formation affecting the soils in the survey area. Soil is a natural, three dimensional body covering the land surface that supports or is capable of supporting plants (Buckman and Brady, 1969). It is a fundamental part of the ecosystem and exists in balance with the other components of the environment. Soil is a mixture of minerals, organic matter, water, and air, each of which occurs in varying proportions. Soils differ in their appearance, productivity, and management requirements in different areas and even within short distances.

Soils are characterized by their vertical sequence of layers, or horizons, that vary in color, texture, chemistry, or structure, or a combination of these properties. Horizons are continually forming and evolving, usually over long periods of time, in response to environmental forces.

The characteristics and properties of a soil are determined by physical and chemical processes that result from the interaction of five factors—climate, living organisms, topography, time, and parent material. The influence of any one of these factors varies from place to place, but the interaction of all the factors determines the kind of soil that forms.

Climate

Climate has had a strong influence on soil formation in the survey area. Temperature and precipitation affect the weathering of rock; the decomposition of minerals; the activity of micro-organisms; the processes of leaching, illuviation, and eluviation; the kind and amount of vegetation; and the accumulation and decomposition of organic matter.

The present climate in the survey area is warm and dry in summer and generally cool and moist in winter. Precipitation is not well distributed throughout the year; approximately 80 percent is received in October through May.

Temperature and precipitation are somewhat influenced by the topography of the area. Generally, as the elevation increases, the average annual precipitation increases and the average annual temperature decreases. The warmest part of the survey area is at the lowest elevation, along the Snake River. This area has an average annual air temperature of about 49 degrees F. The coldest temperatures occur in the northern part of the survey area. This part receives about 8 inches of precipitation annually, and it has an average annual air temperature of about 46 degrees.

The present climatic conditions differ from those of the past. This is evidenced in some of the older soils in the survey area that have developed an argillic horizon and have an accumulation of illuvial clay. These soils probably developed dominantly during the Pleistocene (10 to 50 thousand years ago) when the precipitation was higher than it is at present. The Power soils are an example.

Soil temperatures in the survey area vary only slightly because of the minor variations in elevation. Relief varies only about 900 feet. The entire survey area has a mesic soil temperature regime.

The average annual precipitation ranges from about 8 to 10 inches throughout the survey area. All of the soils in the survey area have an aridic soil moisture regime.

Living Organisms

Living organisms, consisting of plant and animal life, play a significant role in soil formation. On some of the soils in the survey area, the kind and amount of vegetation present influences soil development over time. Animals, insects, bacteria, and other organisms also are important in soil development because they add organic matter to the soil and aerate it. The kind and amount of living organisms present are largely dependent on climatic factors.

The production of vegetation in the survey area is limited by the effective moisture. Annual additions of organic matter are small; therefore, the soils have a light colored surface layer that is 2 percent organic matter or less.

Topography

The survey area is characterized by terraces and hillslopes. These surfaces formed as a result of geologic action. Relief influences soil formation by its effect on the process of erosion, effective precipitation, soil drainage, air drainage, and exposure to sun and wind (Buckman and Brady, 1969).

Soils on stable terraces commonly exhibit the greatest degree of development, mainly because erosion and runoff are minimal. On the steep slopes, the parent material is unstable and the rate of runoff and risk of erosion are higher. Aspect influences the amount of sunlight a soil receives and the rate of evaporation.

Soils on hillslopes and side slopes of terraces with north and east aspects receive less sunlight than those with south and west aspects. As a result, the soil temperature is lower on north and east aspects and the snow stays on the soils longer, providing moisture longer into the growing season. The higher effective moisture results in a thick plant cover that reduces runoff and erosion; consequently, the soils are deeper. The lower soil temperature also inhibits the breakdown of organic matter. This combined with the abundant vegetation results in the formation of a darker colored surface layer. The Hoosegow and Power soils are on north and east aspects.

Soils on hillslopes and side slopes of terraces with south and west aspects typically are shallower and have a thinner surface layer than those with north and east aspects. Direct sunlight on the south and west aspects heats and dries out the soils quickly during the growing season. This speeds up the breakdown of organic matter and limits plant growth, resulting in the formation of a thinner, lighter colored surface layer. Because the ground cover is limited, more erosion takes place on these soils and thus the surface layer is thinner. An example is the Minveno soils.

Some soils on low-lying alluvial terraces have a fluctuating water table, which impedes drainage. Iron oxides accumulate and form redoximorphic features. An example is the Arloval soils. In areas where the water table reaches the surface of the soil, soluble salts are left behind during evaporation. The Garsox soils exhibit this characteristic.

Time

The length of time that the landforms in the survey area have been exposed to the climatic factors and the variability of the parent material, relief, and vegetation have produced a wide variety of soils. The different horizons in the soils and the degree of development, however, can be directly related to time (Buckman and Brady, 1969).

The age of the landforms and parent material in the survey area differs greatly. The relationship between age and soil development is explained further in the section “Parent Material.”

Parent Material

Geologically, the survey area is part of the Snake River Plain. During the Mesozoic era, the area uplifted, forming low hills. Events of the Cenozoic era determined the present geology. Faults and fissures released molten lava from low-profile shield volcanoes. Many volcanoes and basalt vents are in the survey area. The bedrock consists of basalt lava flows underlain by rhyolite at a shallow depth. These lava flows intermittently blocked watercourses, creating pluvial lakes that filled with sediment. The basalt flows and volcanics and the glacial debris and lacustrine deposits influenced the soils that developed in the survey area (Alt, 1989).

Recent and Pleistocene Deposits

One geological event that influenced soil development was the Bonneville Flood, which occurred less than 14,200 years ago. The flood spread water over the terraces below an elevation of about 4,250 feet. They remained inundated throughout most of the flood, producing a subdued relief expressed by discontinuous west-trending swales 5 to 10 feet deep (Malde, 1968). A narrow strip of land about 2 miles wide was scoured, starting north of Acequia, Idaho, and extending to the eastern boundary of the survey area. Later, eolian sandy material was deposited forming the parent material for the Vining and Quincy soils. At an elevation of about 4,160 feet and extending to the Snake River and west to where the flood waters reentered the main Snake River channel, a thick layer of “salt and pepper” sand was deposited. This deposit is characteristic of the surface layer of the Tindahay soil. Grading to the west, the sand was buried by finer textured alluvium. An argillic horizon formed in some soils, such as those of the Woozle series, and a calcic horizon formed in other soils, such as those of the Wodskow series.

During the upper Pleistocene, watercourses were dammed by lava flows from basalt vents and shield volcanoes (Alt, 1989). Alluvium accumulated in the uplands. Some soils, such as those of the Barrymore and Starbuck series, developed a cambic horizon, and others, such as those of the Power and McCain series, developed an argillic horizon.

During the Pleistocene, lava flowed from shield volcanoes such as Kimama Butte. Dating of the upland soils and their duripans can be accomplished by using the radiocarbon-14 method. A palesol under the Stricker Butte lava flow in Twin Falls County was dated using the carbon-14 method. This palesol was dated 14,200+ 210 years B.P.; thus, the maximum age for the basalt is less than 14,200 years. Truncated duripans, therefore, are more than 14,200 years old, and the durinodes are less than 14,200 years old (Lund and others, 1981).

Silty soils formed in the pluvial lakes. These soils have an accumulation of calcium carbonate. Some of these soils, such as those of the Minveno series, are underlain by a duripan. The central part of the survey area has thick deposits of silt. Very deep soils, such as those of the Bahem, Portneuf, and Rad series, formed in these deposits on upland terraces. The Sluka soils, which are on landscape positions similar to those of the Portneuf and Rad soils, developed a duripan.

Snake River Plain lava of the upper and middle Pleistocene underlies the upland terraces in the north-central part of the survey area (Scott, 1982). These basalt flows are characterized by pressure ridges, which are low mounds and ridges of exposed rock about 100 feet across, that rise a few feet above the surrounding landscape (Alt, 1989). The soils on terraces around the exposed basalt outcroppings formed in a mixture of loess and alluvium. The soils on the middle Pleistocene lava flows exhibit greater soil development than do those on the upper lava flows. Generally, soils that developed in fine-silty material have a layer of calcium carbonate accumulation and an argillic horizon. The McCain and Power soils are examples. The soils on younger basalt flows developed a cambic horizon. The Barrymore and Starbuck soils are examples. Clay and salts accumulated in some of the depressions between the terraces and pressure ridges. The fine-textured Unkee soils formed in these accumulations.

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Glossary

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. An illuvial horizon at least 6 inches thick in which a significant amount of secondary calcium carbonate or other carbonates have accumulated.

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Durinodes. Weakly cemented to indurated nodules 1 centimeter in diameter or more. Durinodes dominantly are cemented with silica. They are roughly concentric when viewed in cross section.

Duripan. A subsurface horizon that is cemented by silica to the degree that less than 50 percent of an air-dry fragment slakes in water or when soaked in acid.

Ecological site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind or proportion of species or total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth’s surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Growing season. The interval between the last freezing date (32 degrees F) in spring and the first freezing date in fall. The length of growing season, in consecutive days, is defined as follows:

Very long	more than 140
Long	100 to 140
Short	70 to 100
Very short	less than 70

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, duripan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.00 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.20 to 0.60 inch
Moderate	0.60 inch to 2.00 inches
Moderately rapid	2.00 to 6.00 inches
Rapid	6.00 to 20.00 inches
Very rapid	20.00 to 100.00 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. An adjective used to describe a root-restrictive layer or horizon that can be broken or shattered by agricultural implements.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent
Strongly sloping	8 to 20 percent
Moderately steep	20 to 30 percent
Steep	30 to 60 percent
Very steep	60 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Too arid (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Tables

The tables in this survey give the properties and interpretations for the major components, which are given in the detailed soil map unit names. The properties and interpretations for the minor components, which are listed in the detailed soil map units, will be available in the National Soil Information System (NASIS) database for the survey area as the data fields are populated.

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Paul, Idaho)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	34.4	16.4	25.4	54	-13	4	0.95	0.39	1.42	3	4.8
February----	41.3	21.2	31.2	62	-3	16	0.72	0.17	1.16	2	2.9
March-------	49.3	25.7	37.5	71	8	58	0.84	0.26	1.31	2	2.6
April-------	58.8	31.9	45.4	81	18	193	0.82	0.24	1.34	2	0.8
May---------	68.0	39.7	53.9	89	24	432	1.16	0.43	1.76	3	0.3
June--------	77.9	47.4	62.7	97	33	679	0.92	0.28	1.44	2	0.0
July--------	87.4	52.7	70.1	100	39	932	0.40	0.09	0.72	1	0.0
August------	86.0	50.1	68.1	100	36	870	0.49	0.12	0.91	1	0.0
September---	75.4	41.2	58.3	94	26	550	0.64	0.24	1.10	1	0.0
October-----	63.6	32.2	47.9	84	17	266	0.69	0.23	1.11	2	0.1
November----	47.4	25.8	36.6	70	7	52	1.04	0.44	1.56	3	2.5
December----	36.7	17.9	27.3	57	-9	6	0.96	0.28	1.56	2	5.1
Yearly:											
Average----	60.5	33.5	47.0	---	---	---	---	---	---	---	---
Extreme----	104.0	-28.0	---	101	-17	---	---	---	---	---	---
Total------	---	---	---	---	---	4,058	9.62	7.06	11.82	24	19.1

Average number of days per year with at least 1 inch of snow on the ground: 19

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Paul, Idaho)

Probability	Temperature		
	24 ^{O}F or lower	28 ^{O}F or lower	32 ^{O}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 4	May 15	June 5
2 years in 10 later than--	April 27	May 11	May 29
5 years in 10 later than--	April 15	May 2	May 16
First freezing temperature in fall:			
1 year in 10 earlier than--	October 1	September 18	September 5
2 years in 10 earlier than--	October 7	September 24	September 10
5 years in 10 earlier than--	October 17	October 5	September 21

Table 3.--Growing Season

(Recorded in the period 1961-90 at Paul, Idaho)

Probability	Daily minimum temperature during growing season		
	Higher than 24 ^{O}F	Higher than 28 ^{O}F	Higher than 32 ^{O}F
	Days	*Days*	*Days*
9 years in 10	161	128	97
8 years in 10	169	137	107
5 years in 10	183	154	127
2 years in 10	197	172	146
1 year in 10	204	181	156

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Blaine County	Lincoln County	Minidoka County	Total	
					Area	Extent
		Acres	*Acres*	*Acres*	*Acres*	*Pct*
1	Abo sandy loam, 0 to 2 percent slopes	---	---	730	730	0.2
2	Abo loam, 0 to 2 percent slopes	---	---	2,265	2,265	0.7
3	Arloval loamy fine sand, 0 to 2 percent slopes	---	---	2,965	2,965	0.9
4	Arloval sandy loam, 0 to 2 percent slopes	---	---	605	605	0.2
5	Bahem silt loam, 1 to 4 percent slopes	---	---	2,550	2,550	0.8
6	Bahem silt loam, 4 to 8 percent slopes	---	---	3,200	3,200	1.0
7	Bahem silt loam, 8 to 12 percent slopes	---	---	1,200	1,200	0.4
8	Barrymore-Starbuck complex, 1 to 4 percent slopes	---	---	620	620	0.2
9	Decker fine sandy loam, 0 to 2 percent slopes	---	---	4,990	4,990	1.5
10	Decker loam, 0 to 2 percent slopes	---	---	3,645	3,645	1.1
11	Decker loam, saline, 0 to 2 percent slopes	---	---	605	605	0.2
12	Dolman silt loam, 1 to 4 percent slopes	---	---	1,960	1,960	0.6
13	Eoyote fine sandy loam, 0 to 2 percent slopes	---	---	4,750	4,750	1.5
14	Garsox silt loam, 0 to 2 percent slopes	---	---	1,425	1,425	0.4
15	Hoosegow loam, 6 to 25 percent slopes	---	145	200	345	0.1
16	Hynes silt loam, 0 to 2 percent slopes	---	---	1,105	1,105	0.3
17	Kecko fine sandy loam, 1 to 4 percent slopes	---	---	2,500	2,500	0.8
18	Minveno silt loam, 1 to 8 percent slopes	4,800	6,525	36,475	47,800	14.8
19	Owsel silt loam, 1 to 4 percent slopes	---	---	455	455	0.1
20	Paulville-McPan complex, 1 to 4 percent slopes	---	7,495	1,830	9,325	2.9
21	Pits, gravel	---	10	515	525	0.2
22	Pocatello silt loam, 12 to 30 percent slopes	---	---	1,305	1,305	0.4
23	Portneuf silt loam, 0 to 1 percent slopes	---	---	2,740	2,740	0.8
24	Portneuf silt loam, 1 to 4 percent slopes	150	1,470	46,450	48,070	14.9
25	Portneuf silt loam, 4 to 8 percent slopes	---	140	1,160	1,300	0.4
26	Power silt loam, 1 to 4 percent slopes	1,195	1,695	11,090	13,980	4.3
27	Power silt loam, 4 to 8 percent slopes	---	---	410	410	0.1
28	Power silt loam, 8 to 12 percent slopes	---	---	565	565	0.2
29	Power-McCain complex, 1 to 6 percent slopes	6,215	105	22,020	28,340	8.8
30	Quincy loamy sand, 1 to 8 percent slopes	340	---	5,900	6,240	1.9
31	Rad silt loam, 1 to 4 percent slopes	---	90	675	765	0.2
32	Rad silt loam, 8 to 15 percent slopes	---	170	30	200	*
33	Rock outcrop-Torriorthents complex, very steep	95	40	85	220	*
34	Schodson loamy sand, 0 to 1 percent slopes	---	---	2,470	2,470	0.8
35	Schodson sandy loam, 0 to 1 percent slopes	---	---	3,130	3,130	1.0
36	Sluka silt loam, 1 to 4 percent slopes	625	365	34,750	35,740	11.1
37	Sluka silt loam, 4 to 8 percent slopes	---	425	1,400	1,825	0.6
38	Starbuck-McPan-Rock outcrop complex, 2 to 20 percent slopes	7,455	---	7,900	15,355	4.8
39	Taunton fine sandy loam, 1 to 4 percent slopes	---	---	645	645	0.2
40	Taunton-Paulville complex, 1 to 4 percent slopes	---	1,200	415	1,615	0.5
41	Tindahay loamy sand, 0 to 1 percent slopes	---	---	5,280	5,280	1.6
42	Tindahay sandy loam, 0 to 1 percent slopes	---	---	6,920	6,920	2.1
43	Unkee clay loam, 0 to 1 percent slopes	---	125	1,160	1,285	0.4
44	Vining loamy sand, 1 to 8 percent slopes	---	---	2,290	2,290	0.7
45	Vining sandy loam, 1 to 8 percent slopes	---	---	1,410	1,410	0.4
46	Vining-Kecko-Rock outcrop complex, 1 to 8 percent slopes	9,815	---	3,390	13,205	4.1
47	Wodskow sandy loam, 0 to 2 percent slopes	---	---	11,950	11,950	3.7
48	Wodskow sandy loam, saline, 0 to 2 percent slopes	---	---	800	800	0.2
49	Woozle fine sandy loam, 0 to 1 percent slopes	---	---	1,445	1,445	0.4
50	Woozle loam, 0 to 1 percent slopes	---	---	13,435	13,435	4.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Blaine County	Lincoln County	Minidoka County	Total	
					Area	Extent
		Acres	*Acres*	*Acres*	*Acres*	*Pct*
51	Water	3,110	---	3,390	6,500	2.0
	Total	33,800	20,000	269,200	323,000	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Irrigated Crops and Pasture

(The "N" column is for nonirrigated areas; the "I" column is for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability		Alfalfa hay	Corn silage	Pasture	Spring wheat	Winter wheat	Feed barley	Malt barley	Dry beans	Irish potatoes	Sugar beets
	N	I										
			Tons	*Tons*	*AUM*	*Bu*	*Bu*	*Bu*	*Bu*	*Bu*	*Cwt*	*Tons*
1:												
Abo-----------------	6e	2w	---	16	16	100	110	100	---	32	---	22
2:												
Abo-----------------	6c	2w	---	16	16	100	110	100	---	32	---	22
3:												
Arloval-------------	7e	3e	---	16	15	80	100	100	---	30	---	21
4:												
Arloval-------------	6e	2w	---	16	15	80	100	100	---	32	---	22
5:												
Bahem---------------	6c	2e	6.0	27	13	115	135	135	120	38	440	30
6:												
Bahem---------------	6e	3e	6.0	25	13	115	135	135	120	38	435	29
7:												
Bahem---------------	6e	4e	5.5	24	12	110	130	130	115	33	300	24
8:												
Barrymore-----------	6s	3s	5.0	22	11	115	135	135	120	33	---	22
Starbuck------------	6e	4e	4.5	15	9	70	90	75	90	27	---	22
9:												
Decker--------------	6e	2w	---	16	15	90	110	100	---	32	280	22
10:												
Decker--------------	6c	2w	---	16	16	90	110	100	---	33	280	22
11:												
Decker--------------	7s	3w	---	---	11	85	105	95	---	---	---	22
12:												
Dolman--------------	6s	3s	5.0	21	13	115	135	135	120	33	---	22
13:												
Eoyote--------------	6c	2e	5.5	22	12	120	140	140	95	37	450	26

Table 5.--Land Capability and Yields per Acre of Irrigated Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Corn silage	Pasture	Spring wheat	Winter wheat	Feed barley	Malt barley	Dry beans	Irish potatoes	Sugar beets
	N	I										
			Tons	*Tons*	*AUM*	*Bu*	*Bu*	*Bu*	*Bu*	*Bu*	*Cwt*	*Tons*
14:												
Garsox	6s	4s	---	---	11	78	98	95	---	---	---	19
15:												
Hoosegow	6e	---	---	---	---	---	---	---	---	---	---	---
16:												
Hynes	6c	2c	7.0	30	15	130	150	150	135	38	440	29
17:												
Kecko	6e	2e	5.0	22	12	130	150	140	95	37	450	26
18:												
Minveno	6e	4e	4.5	15	9	70	90	90	75	27	---	20
19:												
Owsel	6c	2e	6.0	23	---	---	---	110	---	44	300	---
20:												
Paulville	6e	2e	5.5	25	13	110	130	130	115	35	400	23
McPan	6e	3e	4.5	21	11	105	125	125	110	33	350	22
21:												
Pits, gravel	8	---	---	---	---	---	---	---	---	---	---	---
22:												
Pocatello	6e	---	---	---	---	---	---	---	---	---	---	---
23:												
Portneuf	6c	2c	6.0	25	13	115	135	135	120	37	410	24
24:												
Portneuf	6c	2e	6.0	25	13	115	135	135	120	37	410	24
25:												
Portneuf	6e	3e	5.5	25	13	115	135	135	120	36	400	24
26:												
Power	6c	2e	6.0	26	13	115	135	135	120	37	410	24
27:												
Power	6e	3e	6.0	26	13	115	135	135	120	37	410	24
28:												
Power	6e	4e	5.5	23	13	110	129	129	115	30	370	23

Table 5.--Land Capability and Yields per Acre of Irrigated Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Corn silage	Pasture	Spring wheat	Winter wheat	Feed barley	Malt barley	Dry beans	Irish potatoes	Sugar beets
	N	I										
			Tons	*Tons*	*AUM*	*Bu*	*Bu*	*Bu*	*Bu*	*Bu*	*Cwt*	*Tons*
29:												
Power---------------	6e	2e	5.5	26	13	110	130	135	120	35	410	23
McCain--------------	6e	3e	4.5	21	11	105	125	120	110	33	360	22
30:												
Quincy--------------	7e	3e	4.5	22	11	120	140	140	95	31	450	24
31:												
Rad-----------------	6c	2e	6.0	25	13	115	135	130	115	37	410	24
32:												
Rad-----------------	6e	4e	5.5	22	13	110	130	125	110	33	380	23
33:												
Rock outcrop--------	8	---	---	---	---	---	---	---	---	---	---	---
Torriorthents-------	8	---	---	---	---	---	---	---	---	---	---	---
34:												
Schodson------------	7e	3e	---	16	13	100	110	100	---	33	---	22
35:												
Schodson------------	6s	3w	---	16	13	100	110	100	---	---	---	22
36:												
Sluka---------------	6s	3e	4.5	22	11	110	130	130	115	33	360	22
37:												
Sluka---------------	6e	4e	4.5	22	11	110	130	130	115	33	360	22
38:												
Starbuck------------	6e	---	---	---	---	---	---	---	---	---	---	---
McPan---------------	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop--------	8	---	---	---	---	---	---	---	---	---	---	---
39:												
Taunton-------------	6s	3e	4.5	22	8	120	140	130	90	35	300	23
40:												
Taunton-------------	6e	---	---	---	---	---	---	---	---	---	---	---
Paulville-----------	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Irrigated Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Corn silage	Pasture	Spring wheat	Winter wheat	Feed barley	Malt barley	Dry beans	Irish potatoes	Sugar beets
	N	I										
			Tons	*Tons*	*AUM*	*Bu*	*Bu*	*Bu*	*Bu*	*Bu*	*Cwt*	*Tons*
41:												
Tindahay------------	7e	3e	4.5	22	12	120	140	140	100	32	450	24
42:												
Tindahay------------	6s	3s	4.5	22	12	120	140	140	100	35	450	25
43:												
Unkee---------------	6s	3s	5.0	22	12	105	120	120	---	32	---	22
44:												
Vining--------------	7e	4e	4.0	21	8	90	105	130	90	30	420	22
45:												
Vining--------------	6e	3e	4.0	22	8	120	140	130	90	35	420	24
46:												
Vining--------------	6e	3e	4.0	22	8	120	140	130	90	35	420	23
Kecko---------------	6e	2e	4.5	22	12	130	150	140	95	35	450	23
Rock outcrop--------	8	---	---	---	---	---	---	---	---	---	---	---
47:												
Wodskow-------------	6e	2w	---	16	14	90	105	100	---	33	270	22
48:												
Wodskow-------------	6s	3w	---	---	11	90	105	100	---	---	---	---
49:												
Woozle--------------	6e	2e	7.0	30	16	130	150	150	135	38	450	30
50:												
Woozle--------------	6c	2c	7.0	30	16	130	150	150	130	38	450	30
51:												
Water---------------	8	---	---	---	---	---	---	---	---	---	---	---

Table 6.--Rangeland Productivity and Characteristic Plant Communities

(Only the soils that are at least 10 percent rangeland are listed)

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
5:						
Bahem	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
6:						
Bahem	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
7:						
Bahem	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
8:						
Barrymore	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
8:						
Starbuck	Shallow Loamy 8-12 PZ 011AY002ID	650	560	275	Wyoming big sagebrush	30
					Bluebunch wheatgrass	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Lupine	5
					Tapertip hawksbeard	5
12:						
Dolman	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
15:						
Hoosegow	Loamy Bottom 8-14 PZ 011AY008ID	1,600	1,200	800	Basin wildrye	50
					Basin big sagebrush	15
					Nevada bluegrass	5
					Sandberg bluegrass	5
					Rabbitbrush	5
17:						
Kecko	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
18:						
Minveno	Shallow Loamy 8-12 PZ 011AY002ID	650	560	275	Wyoming big sagebrush	30
					Bluebunch wheatgrass	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Lupine	5
					Tapertip hawksbeard	5
19:						
Owsel	Loamy 8-12 PZ 011AY004ID	1,100	700	500	Bluebunch wheatgrass	25
					Thurber needlegrass	15
					Wyoming big sagebrush	15
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Basin big sagebrush	5
					Basin wildrye	5
					Bottlebrush squirreltail	5
					Tapertip hawksbeard	5
20:						
Paulville	Loamy 8-12 PZ 011AY004ID	1,100	700	500	Bluebunch wheatgrass	25
					Thurber needlegrass	15
					Wyoming big sagebrush	15
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Basin big sagebrush	5
					Basin wildrye	5
					Bottlebrush squirreltail	5
					Tapertip hawksbeard	5
McPan	Loamy 8-12 PZ 011AY004ID	1,100	700	500	Bluebunch wheatgrass	25
					Thurber needlegrass	15
					Wyoming big sagebrush	15
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Basin big sagebrush	5
					Basin wildrye	5
					Bottlebrush squirreltail	5
					Tapertip hawksbeard	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
22:						
Pocatello	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
27:						
Power	Loamy 8-12 PZ 011AY009ID	1,100	700	500	Basin big sagebrush	25
					Bluebunch wheatgrass	25
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Arrowleaf balsamroot	5
					Bottlebrush squirreltail	5
					Tall rabbitbrush	5
28:						
Power	Loamy 8-12 PZ 011AY009ID	1,100	700	500	Basin big sagebrush	25
					Bluebunch wheatgrass	25
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Arrowleaf balsamroot	5
					Bottlebrush squirreltail	5
					Tall rabbitbrush	5
29:						
Power	Loamy 8-12 PZ 011AY009ID	1,100	700	500	Basin big sagebrush	25
					Bluebunch wheatgrass	25
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Arrowleaf balsamroot	5
					Bottlebrush squirreltail	5
					Tall rabbitbrush	5
McCain	Loamy 8-12 PZ 011AY009ID	1,100	700	500	Basin big sagebrush	25
					Bluebunch wheatgrass	25
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Arrowleaf balsamroot	5
					Bottlebrush squirreltail	5
					Tall rabbitbrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
30:						
Quincy	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
31:						
Rad	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
32:						
Rad	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
33:						
Rock outcrop.						
Torriorthents	Stony Loam 10-12 PZ 011AY011ID	600	400	200	Basin big sagebrush	30
					Bluebunch wheatgrass	25
					Thurber needlegrass	10
					Sandberg bluegrass	5
					Antelope bitterbrush	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	Lb/acre	Lb/acre		Pct
36:						
Sluka	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
37:						
Sluka	Loamy 8-10 PZ 011AY001ID	900	600	300	Thurber needlegrass	25
					Wyoming big sagebrush	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Tapertip hawksbeard	5
38:						
Starbuck	Shallow Loamy 8-12 PZ 011AY002ID	650	560	275	Wyoming big sagebrush	30
					Bluebunch wheatgrass	25
					Indian ricegrass	5
					Sandberg bluegrass	5
					Bottlebrush squirreltail	5
					Green rabbitbrush	5
					Lupine	5
					Tapertip hawksbeard	5
McPan	Loamy 8-12 PZ 011AY004ID	1,100	700	500	Bluebunch wheatgrass	25
					Thurber needlegrass	15
					Wyoming big sagebrush	15
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Basin big sagebrush	5
					Basin wildrye	5
					Bottlebrush squirreltail	5
					Tapertip hawksbeard	5
Rock outcrop.						

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
39:						
Taunton	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
40:						
Taunton	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
Paulville	Loamy 8-12 PZ 011AY004ID	1,100	700	500	Bluebunch wheatgrass	25
					Thurber needlegrass	15
					Wyoming big sagebrush	15
					Sandberg bluegrass	5
					Arrowleaf balsamroot	5
					Basin big sagebrush	5
					Basin wildrye	5
					Bottlebrush squirreltail	5
					Tapertip hawksbeard	5
44:						
Vining	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5

Table 6.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production: Favorable year	Total dry-weight production: Normal year	Total dry-weight production: Unfavorable year	Characteristic vegetation	Rangeland composition
		Lb/acre	*Lb/acre*	*Lb/acre*		*Pct*
45:						
Vining	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
46:						
Vining	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
Kecko	Sand 8-12 PZ 011AY014ID	800	650	450	Basin big sagebrush	25
					Needleandthread	20
					Indian ricegrass	15
					Sandberg bluegrass	5
					Thurber needlegrass	5
					Bluebunch wheatgrass	5
					Bottlebrush squirreltail	5
					Little larkspur	5
					Tall rabbitbrush	5
Rock outcrop.						

Table 7.--Windbreaks and Environmental Plantings

(Only the soils that support windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1:					
Abo	Siberian peashrub, lilac, redosier dogwood, silver buffaloberry.	Russian olive, black willow, golden willow, green ash.	Siberian elm, plains cottonwood, white willow.	---	---
2:					
Abo	Siberian peashrub, lilac, redosier dogwood, silver buffaloberry.	Russian olive, black willow, golden willow, green ash.	Siberian elm, plains cottonwood, white willow.	---	---
3:					
Arloval	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
4:					
Arloval	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
5:					
Bahem	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
6:					
Bahem	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
7:					
Bahem	Fourwing saltbush, Amur honeysuckle, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
8:					
Barrymore	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
Starbuck.					
9:					
Decker	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
10:					
Decker	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
11:					
Decker	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
12:					
Dolman	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
13:					
Eoyote	Redosier dogwood, Siberian peashrub, lilac, silver buffaloberry, skunkbush sumac.	Rocky Mountain juniper, eastern redcedar.	Austrian pine, black locust, ponderosa pine, Scotch pine, blue spruce, green ash.	Chinese elm, Siberian elm.	Silver maple, black cottonwood, idahybrid poplar, plains cottonwood, robusta cottonwood.
14:					
Garsox	Fourwing saltbush, Siberian peashrub, lilac, redosier dogwood.	Russian olive, black willow, golden willow, green ash.	Siberian elm, black cottonwood, plains cottonwood, white willow.	---	---
16:					
Hynes	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
17:					
Kecko	Redosier dogwood, Siberian peashrub, lilac, silver buffaloberry, skunkbush sumac.	Rocky Mountain juniper, eastern redcedar.	Austrian pine, black locust, ponderosa pine, Scotch pine, blue spruce, green ash.	Chinese elm, Siberian elm.	Silver maple, black cottonwood, idahybrid poplar, plains cottonwood, robusta cottonwood.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
20:					
Paulville	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.
McPan	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
23:					
Portneuf	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
24:					
Portneuf	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
25:					
Portneuf	Amur honeysuckle, fourwing saltbush, lilac, silver buffaloberry.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, black locust.	Austrian pine, blue spruce, golden willow, green ash.	Siberian elm, plains cottonwood, robusta cottonwood, idahybrid poplar.
26:					
Power	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.
27:					
Power	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
28:					
Power	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.
29:					
Power	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.
McCain	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
30:					
Quincy	Fourwing saltbush, American plum, European privet, Siberian peashrub, lilac.	Rocky Mountain juniper, Russian olive, black locust.	Austrian pine, Scotch pine, blue spruce, ponderosa pine.	Chinese elm, Siberian elm, black cottonwood.	Idahybrid poplar, plains cottonwood.
31:					
Rad	Redosier dogwood, Siberian peashrub, lilac, silver buffaloberry, skunkbush sumac.	Rocky Mountain juniper, eastern redcedar.	Austrian pine, black locust, ponderosa pine, Scotch pine, blue spruce, green ash.	Chinese elm, Siberian elm.	Silver maple, black cottonwood, idahybrid poplar, plains cottonwood, robusta cottonwood.
32:					
Rad	Redosier dogwood, Siberian peashrub, lilac, silver buffaloberry, skunkbush sumac.	Rocky Mountain juniper, eastern redcedar.	Austrian pine, black locust, ponderosa pine, Scotch pine, blue spruce, green ash.	Chinese elm, Siberian elm.	Silver maple, black cottonwood, idahybrid poplar, plains cottonwood, robusta cottonwood.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
34:					
Schodson	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
35:					
Schodson	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
36:					
Sluka	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
37:					
Sluka	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
39:					
Taunton	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
40:					
Taunton	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
Paulville	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.
41:					
Tindahay	Fourwing saltbush, American plum, European privet, Siberian peashrub, lilac.	Rocky Mountain juniper, Russian olive, black locust.	Austrian pine, Scotch pine, blue spruce, ponderosa pine.	Chinese elm, Siberian elm, black cottonwood.	Idahybrid poplar, plains cottonwood.
42:					
Tindahay	American plum, European privet, Siberian peashrub, fourwing saltbush, lilac.	Rocky Mountain juniper, Russian olive, black locust.	Austrian pine, Scotch pine, blue spruce, ponderosa pine.	Chinese elm, Siberian elm, black cottonwood.	Idahybrid poplar, plains cottonwood.
43:					
Unkee	American plum, Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac.	Amur maple, Manchurian crabapple, Rocky Mountain juniper, Russian olive.	Austrian pine, black locust, blue spruce, green ash, ponderosa pine, Scotch pine.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
44:					
Vining	Fourwing saltbush, American plum, European privet, Siberian peashrub, lilac.	Rocky Mountain juniper, Russian olive, black locust.	Austrian pine, Scotch pine, blue spruce, ponderosa pine.	Chinese elm, Siberian elm, black cottonwood.	Idahybrid poplar, plains cottonwood.
45:					
Vining	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
46:					
Vining	American plum, Amur honeysuckle, European privet, lilac.	Russian olive, black locust.	Austrian pine, blue spruce, eastern redcedar, green ash, white willow, black cottonwood.	Chinese elm, Siberian elm.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
Kecko	Redosier dogwood, Siberian peashrub, lilac, silver buffaloberry, skunkbush sumac.	Rocky Mountain juniper, eastern redcedar.	Austrian pine, black locust, ponderosa pine, Scotch pine, blue spruce, green ash.	Chinese elm, Siberian elm.	Silver maple, black cottonwood, idahybrid poplar, plains cottonwood, robusta cottonwood.
Rock outcrop.					
47:					
Wodskow	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
48:					
Wodskow	Amur honeysuckle, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar, Austrian pine, blue spruce, ponderosa pine, Scotch pine, golden willow, green ash.	Chinese elm, Siberian elm, black cottonwood, plains cottonwood.	Robusta cottonwood, Lombardy poplar, idahybrid poplar.
49:					
Woozle	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.

Table 7.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
50:					
Woozle	Amur honeysuckle, Nanking cherry, Peking cotoneaster, lilac, redosier dogwood.	American plum, Siberian peashrub.	Rocky Mountain juniper, Russian olive, eastern redcedar.	Austrian pine, black locust, ponderosa pine, blue spruce, green ash.	Golden willow, Scotch pine, Siberian elm, Lombardy poplar, idahybrid poplar.

Table 8.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1: Abo	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: excess salt, wetness.
2: Abo	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: excess salt, wetness.
3: Arloval	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
4: Arloval	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
5: Bahem	Slight	Slight	Slight	Slight	Slight	Slight.
6: Bahem	Slight	Slight	Slight	Moderate: slope.	Slight	Slight.
7: Bahem	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
8: Barrymore	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.
Starbuck	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
9: Decker	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness.
10: Decker	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Moderate: wetness.
11: Decker	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Severe: excess salt.
12: Dolman	Moderate: cemented pan, cutbanks cave.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
13:						
Eoyote	Slight	Slight	Slight	Slight	Slight	Slight.
14:						
Garsox	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: frost action.	Severe: excess sodium.
15:						
Hoosegow	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
16:						
Hynes	Slight	Slight	Slight	Slight	Slight	Slight.
17:						
Kecko	Slight	Slight	Slight	Slight	Slight	Slight.
18:						
Minveno	Severe: cemented pan, depth to rock.	Severe: cemented pan.	Severe: cemented pan, depth to rock.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
19:						
Owsel	Slight	Slight	Slight	Slight	Slight	Slight.
20:						
Paulville	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
McPan	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: cemented pan, depth to rock.
21:						
Pits, gravel	---	---	---	---	---	---
22:						
Pocatello	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
23:						
Portneuf	Slight	Slight	Slight	Slight	Slight	Slight.
24:						
Portneuf	Slight	Slight	Slight	Slight	Slight	Slight.
25:						
Portneuf	Slight	Slight	Slight	Slight	Moderate: slope.	Slight.
26:						
Power	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
27:						
Power	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
28:						
Power	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Moderate: shrink-swell, slope.	Moderate: slope.
29:						
Power	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
McCain	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Severe: depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: shrink-swell, depth to rock.	Moderate: depth to rock.
30:						
Quincy	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
31:						
Rad	Slight	Slight	Slight	Slight	Slight	Slight.
32:						
Rad	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
33:						
Rock outcrop	---	---	---	---	---	---
Torriorthents	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
34:						
Schodson	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness, droughty.
35:						
Schodson	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness, droughty.
36:						
Sluka	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Slight	Moderate: cemented pan.	Moderate: cemented pan.
37:						
Sluka	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: slope.	Moderate: cemented pan.	Moderate: cemented pan.
38:						
Starbuck	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
McPan	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: shrink-swell, slope, depth to rock.	Moderate: slope, depth to rock.
Rock outcrop	---	---	---	---	---	---

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
39:						
Taunton	Moderate: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan, droughty.
40:						
Taunton	Moderate: cemented pan.	Moderate: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan.	Moderate: cemented pan, droughty.
Paulville	Slight	Moderate: shrink-swell.	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
41:						
Tindahay	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
42:						
Tindahay	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
43:						
Unkee	Severe: ponding, cutbanks cave.	Severe: shrink-swell, ponding.	Severe: shrink-swell, ponding.	Severe: shrink-swell, ponding.	Severe: shrink-swell, ponding.	Severe: ponding.
44:						
Vining	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.	Moderate: large stones, depth to rock, droughty.
45:						
Vining	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.	Moderate: large stones, depth to rock, droughty.
46:						
Vining	Severe: depth to rock.	Moderate: depth to rock.	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.	Moderate: large stones, depth to rock, droughty.
Kecko	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
Rock outcrop	---	---	---	---	---	---
47:						
Wodskow	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Moderate: wetness.
48:						
Wodskow	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: frost action, wetness.	Severe: excess salt.
49:						
Woozle	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.

Table 8.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
50:						
Woozle------------------	Severe: cutbanks cave.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Slight.
51:						
Water-------------------	---	---	---	---	---	---

Table 9.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1:					
Abo	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: thin layer, wetness.
2:					
Abo	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: thin layer, wetness.
3:					
Arloval	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, too sandy, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
4:					
Arloval	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, too sandy, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
5:					
Bahem	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
6:					
Bahem	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
7:					
Bahem	Moderate: percs slowly, slope.	Moderate: seepage, slope.	Moderate: slope.	Moderate: slope.	Moderate: slope.
8:					
Barrymore	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.
Starbuck	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.
9:					
Decker	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: thin layer, wetness.
10:					
Decker	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: thin layer, wetness.

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
11:					
Decker	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: thin layer, wetness.
12:					
Dolman	Severe: cemented pan, poor filter.	Severe: cemented pan, seepage.	Severe: cemented pan, too sandy.	Slight	Poor: cemented pan, too sandy.
13:					
Eoyote	Slight	Severe: seepage.	Slight	Slight	Good.
14:					
Garsox	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: excess sodium.
15:					
Hoosegow	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: slope.	Poor: slope.
16:					
Hynes	Severe: percs slowly.	Moderate: seepage.	Slight	Slight	Good.
17:					
Kecko	Slight	Severe: seepage.	Slight	Slight	Good.
18:					
Minveno	Severe: cemented pan, depth to rock.	Severe: cemented pan, depth to rock.	Severe: cemented pan, depth to rock.	Slight	Poor: cemented pan, depth to rock.
19:					
Owsel	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Good.
20:					
Paulville	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
McPan	Severe: cemented pan, depth to rock.	Severe: cemented pan, depth to rock.	Severe: cemented pan, depth to rock.	Slight	Poor: cemented pan, depth to rock.
21:					
Pits, gravel	---	---	---	---	---
22:					
Pocatello	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
23:					
Portneuf	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Good.

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
24:					
Portneuf	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Good.
25:					
Portneuf	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Good.
26:					
Power	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
27:					
Power	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
28:					
Power	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
29:					
Power	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
McCain	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.
30:					
Quincy	Severe: poor filter.	Severe: seepage.	Moderate: too sandy.	Slight	Poor: too sandy.
31:					
Rad	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
32:					
Rad	Severe: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
33:					
Rock outcrop	---	---	---	---	---
Torriorthents	Severe: slope, depth to rock.	Severe: seepage, slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Poor: slope, depth to rock.
34:					
Schodson	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, too sandy, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy.

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
35:					
Schodson	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, too sandy, wetness.	Severe: seepage, wetness.	Poor: seepage, too sandy.
36:					
Sluka	Severe: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Slight	Poor: cemented pan.
37:					
Sluka	Severe: cemented pan.	Severe: cemented pan.	Moderate: cemented pan.	Slight	Poor: cemented pan.
38:					
Starbuck	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: depth to rock.
McPan	Severe: cemented pan, depth to rock.	Severe: cemented pan, slope, depth to rock.	Severe: cemented pan, depth to rock.	Moderate: slope.	Poor: cemented pan, depth to rock.
Rock outcrop	---	---	---	---	---
39:					
Taunton	Severe: cemented pan.	Severe: cemented pan, seepage.	Moderate: cemented pan.	Slight	Poor: cemented pan.
40:					
Taunton	Severe: cemented pan.	Severe: cemented pan, seepage.	Moderate: cemented pan.	Slight	Poor: cemented pan.
Paulville	Severe: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Good.
41:					
Tindahay	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
42:					
Tindahay	Severe: poor filter.	Severe: seepage.	Severe: too sandy.	Slight	Poor: seepage, too sandy.
43:					
Unkee	Severe: percs slowly, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: hard to pack, ponding.
44:					
Vining	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.

Table 9.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
45:					
Vining	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.
46:					
Vining	Severe: depth to rock.	Severe: seepage, depth to rock.	Severe: depth to rock.	Slight	Poor: depth to rock.
Kecko	Slight	Severe: seepage.	Slight	Slight	Good.
Rock outcrop	---	---	---	---	---
47:					
Wodskow	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Poor: seepage.
48:					
Wodskow	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Poor: seepage.
49:					
Woozle	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Poor: seepage.
50:					
Woozle	Severe: percs slowly.	Severe: seepage.	Slight	Slight	Poor: seepage.
51:					
Water	---	---	---	---	---

Table 10.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
1:				
Abo	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
2:				
Abo	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
3:				
Arloval	Poor: wetness.	Probable	Improbable: excess fines.	Poor: wetness.
4:				
Arloval	Poor: wetness.	Probable	Improbable: excess fines.	Poor: wetness.
5:				
Bahem	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
6:				
Bahem	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
7:				
Bahem	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt, slope.
8:				
Barrymore	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock.
Starbuck	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
9:				
Decker	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
10:				
Decker	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
11:				
Decker	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
12:				
Dolman	Poor: cemented pan.	Probable	Improbable: excess fines.	Fair: area reclaim, cemented pan.
13:				
Eoyote	Good	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
14:				
Garsox	Fair: wetness.	Probable	Improbable: excess fines.	Poor: excess sodium.
15:				
Hoosegow	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
16:				
Hynes	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
17:				
Kecko	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
18:				
Minveno	Poor: cemented pan, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, depth to rock.
19:				
Owsel	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
20:				
Paulville	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
McPan	Poor: cemented pan, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, depth to rock.
21:				
Pits, gravel	---	---	---	---
22:				
Pocatello	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
23:				
Portneuf	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
24:				
Portneuf	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
25:				
Portneuf	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
26:				
Power	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
27:				
Power	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
28:				
Power	Good	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
29:				
Power	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
McCain	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock.
30:				
Quincy	Good	Probable	Improbable: excess fines.	Fair: too sandy
31:				
Rad	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt.
32:				
Rad	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: excess salt, slope.
33:				
Rock outcrop	---	---	---	---
Torriorthents	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, depth to rock.
34:				
Schodson	Fair: wetness.	Probable	Improbable: excess fines.	Fair: too sandy.
35:				
Schodson	Fair: wetness.	Probable	Improbable: excess fines.	Fair: too sandy.
36:				
Sluka	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan.
37:				
Sluka	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan.
38:				
Starbuck	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
McPan	Poor: cemented pan, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, depth to rock.
Rock outcrop	---	---	---	---
39:				
Taunton	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan.
40:				
Taunton	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan.
Paulville	Good	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 10.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
41:				
Tindahay	Good	Probable	Improbable: excess fines.	Poor: small stones, too sandy.
42:				
Tindahay	Good	Probable	Improbable: excess fines.	Poor: small stones, too sandy.
43:				
Unkee	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
44:				
Vining	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
45:				
Vining	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
46:				
Vining	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: large stones.
Kecko	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Rock outcrop	---	---	---	---
47:				
Wodskow	Fair: wetness.	Probable	Improbable: excess fines.	Fair: excess salt.
48:				
Wodskow	Fair: wetness.	Probable	Improbable: excess fines.	Fair: excess salt.
49:				
Woozle	Good	Probable	Improbable: excess fines.	Good.
50:				
Woozle	Good	Probable	Improbable: excess fines.	Good.
51:				
Water	---	---	---	---

Table 11.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
1: Abo	Severe: seepage.	Severe: piping.	Moderate: slow refill, deep to water.	Limitation: frost action.	Limitation: excess salt, soil blowing.	Limitation: soil blowing.	Limitation: excess salt, too arid.
2: Abo	Severe: seepage.	Severe: piping.	Moderate: slow refill, deep to water.	Limitation: frost action.	Limitation: excess salt.	Favorable	Limitation: excess salt, too arid.
3: Arloval	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Limitation: cutbanks cave.	Limitation: fast intake, soil blowing, droughty.	Limitation: too sandy, soil blowing.	Limitation: droughty.
4: Arloval	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Limitation: cutbanks cave.	Limitation: soil blowing, droughty.	Limitation: too sandy, soil blowing.	Limitation: droughty.
5: Bahem	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
6: Bahem	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt, slope.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
7: Bahem	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope, too arid.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
8:							
Barrymore	Moderate: seepage, depth to rock.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, depth to rock.	Limitation: erodes easily, depth to rock.	Limitation: erodes easily, too arid, depth to rock.
Starbuck	Severe: depth to rock.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, depth to rock.	Limitation: erodes easily, depth to rock.	Limitation: erodes easily, too arid, depth to rock.
9:							
Decker	Severe: seepage.	Severe: piping.	Moderate: slow refill, deep to water.	Limitation: frost action.	Limitation: excess salt, soil blowing.	Limitation: soil blowing.	Limitation: excess salt, too arid.
10:							
Decker	Severe: seepage.	Severe: piping.	Moderate: slow refill, deep to water.	Limitation: frost action.	Limitation: excess salt.	Favorable	Limitation: excess salt, too arid.
11:							
Decker	Severe: seepage.	Severe: piping.	Moderate: slow refill, deep to water.	Limitation: frost action.	Limitation: excess salt.	Favorable	Limitation: excess salt, too arid.
12:							
Dolman	Severe: seepage.	Severe: seepage, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, cemented pan.	Limitation: erodes easily, cemented pan.	Limitation: erodes easily, cemented pan, too arid.
13:							
Eoyote	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: soil blowing.	Limitation: too arid.
14:							
Garsox	Moderate: seepage.	Severe: excess sodium, seepage, piping.	Moderate: slow refill, salty water deep to water.	Limitation: excess sodium, frost action.	Limitation: erodes easily, excess sodium.	Limitation: erodes easily.	Limitation: excess sodium, excess salt, too arid.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
15: Hoosegow	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope, too arid.
16: Hynes	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
17: Kecko	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: soil blowing.	Limitation: too arid.
18: Minveno	Severe: cemented pan.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: cemented pan, slope, depth to rock.	Limitation: erodes easily, cemented pan, depth to rock.	Limitation: erodes easily, too arid, depth to rock.
19: Owsel	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
20: Paulville	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
McPan	Moderate: cemented pan, seepage, depth to rock.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, cemented pan, depth to rock.	Limitation: erodes easily, cemented pan, depth to rock.	Limitation: erodes easily, cemented pan, too arid.
21: Pits, gravel	---	---	---	---	---	---	---
22: Pocatello	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope, too arid.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
23: Portneuf	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
24: Portneuf	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
25: Portneuf	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, excess salt, slope.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
26: Power	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
27: Power	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
28: Power	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope, too arid.
29: Power	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
McCain	Moderate: seepage, slope, depth to rock.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope, depth to rock.	Limitation: erodes easily, depth to rock.	Limitation: erodes easily, too arid, depth to rock.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
30: Quincy	Severe: seepage.	Severe: seepage, piping.	Severe: no water, cutbanks cave.	Limitation: cutbanks cave, deep to water.	Limitation: fast intake, soil blowing, droughty.	Limitation: soil blowing.	Limitation: too arid, droughty.
31: Rad	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly	Limitation: erodes easily.	Limitation: erodes easily, too arid.
32: Rad	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope, too arid.
33: Rock outcrop	---	---	---	---	---	---	---
Torriorthents	Severe: slope, depth to rock.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope, depth to rock.	Limitation: slope, depth to rock.	Limitation: slope, depth to rock.
34: Schodson	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Limitation: cutbanks cave.	Limitation: fast intake, soil blowing, droughty.	Limitation: too sandy, soil blowing.	Limitation: droughty.
35: Schodson	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Limitation: cutbanks cave.	Limitation: droughty.	Limitation: too sandy, soil blowing.	Limitation: droughty.
36: Sluka	Moderate: cemented pan, seepage.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, cemented pan.	Limitation: erodes easily, cemented pan.	Limitation: erodes easily, cemented pan, too arid.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
37:							
Sluka------------------	Moderate: cemented pan, seepage, slope.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, cemented pan, slope.	Limitation: erodes easily, cemented pan.	Limitation: erodes easily, cemented pan, too arid.
38:							
Starbuck---------------	Severe: slope, depth to rock.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope, depth to rock.	Limitation: erodes easily, slope, depth to rock.	Limitation: erodes easily, slope, too arid.
McPan------------------	Severe: slope.	Severe: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, cemented pan, slope.	Limitation: erodes easily, cemented pan, slope.	Limitation: erodes easily, slope, too arid.
Rock outcrop-----------	---	---	---	---	---	---	---
39:							
Taunton----------------	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: cemented pan, soil blowing.	Limitation: cemented pan, too arid.
40:							
Taunton----------------	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Favorable------	Limitation: cemented pan.	Limitation: cemented pan, too arid.
Paulville--------------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily, too arid.
41:							
Tindahay---------------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing, droughty.	Limitation: too sandy, soil blowing.	Limitation: too arid, droughty.
42:							
Tindahay---------------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing, droughty.	Limitation: too sandy, soil blowing.	Limitation: too arid, droughty.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
43: Unkee	Slight	Severe: hard to pack, ponding.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly, ponding.	Limitation: erodes easily, percs slowly, ponding.	Limitation: erodes easily, percs slowly, too arid.
44: Vining	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: soil blowing, depth to rock.	Limitation: too arid.
45: Vining	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: soil blowing, depth to rock.	Limitation: too arid.
46: Vining	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: soil blowing, depth to rock.	Limitation: too arid.
Kecko	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: soil blowing.	Limitation: too arid.
Rock outcrop	---	---	---	---	---	---	---
47: Wodskow	Severe: seepage.	Severe: seepage, piping.	Moderate: deep to water.	Limitation: excess salt.	Limitation: excess salt, soil blowing.	Limitation: soil blowing.	Limitation: excess salt, too arid.
48: Wodskow	Severe: seepage.	Severe: seepage, piping.	Moderate: deep to water.	Limitation: excess salt.	Limitation: excess salt, soil blowing.	Limitation: soil blowing.	Limitation: excess salt, too arid.
49: Woozle	Severe: seepage.	Moderate: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: soil blowing.	Limitation: too arid.
50: Woozle	Severe: seepage.	Moderate: piping.	Severe: no water.	Limitation: deep to water.	Favorable	Favorable	Limitation: too arid.

Table 11.--Water Management--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
51:							
Water	---	---	---	---	---	---	---

Table 12.--Engineering Index Properties

(Absence of an entry indicates that the feature is not a concern)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1:												
Abo-------------	0-9	Sandy loam	SM	A-2, A-4	0	0	100	95-100	60-70	25-50	15-25	NP-5
	9-15	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	90-100	70-85	30-40	10-15
	15-19	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	90-100	70-85	30-40	10-15
	19-24	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	24-34	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	34-45	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	45-51	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	51-60	Stratified coarse sand to fine gravelly coarse sandy loam	SM	A-2	0	0-5	85-100	60-100	50-75	20-30	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
2:												
Abo-------------	0-9	Loam	SM	A-2, A-4	0	0	100	95-100	60-70	25-50	15-25	NP-5
	9-15	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	90-100	70-85	30-40	10-15
	15-19	Clay loam, silty clay loam	CL	A-6	0	0	100	95-100	90-100	70-85	30-40	10-15
	19-24	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	24-34	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	34-45	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	45-51	Loam, silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	80-100	50-80	15-25	NP-5
	51-60	Stratified coarse sand to fine gravelly coarse sandy loam	SM	A-2	0	0-5	85-100	60-100	50-75	20-30	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
3:												
Arloval---------	0-10	Loamy fine sand	SM	A-2	0	0	85-100	85-100	50-70	15-25	---	NP
	10-23	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	23-35	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	35-52	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	52-60	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
4:												
Arloval---------	0-10	Sandy loam	SM	A-2	0	0	85-100	85-100	50-70	15-25	---	NP
	10-23	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	23-35	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	35-52	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
	52-60	Loamy fine sand, loamy sand, sand	SM	A-1, A-2	0	0	85-100	75-100	35-75	10-30	---	NP
5:												
Bahem-----------	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-90	20-30	NP-10
	10-16	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	16-38	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	38-47	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5
	47-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
6:												
Bahem-----------	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-90	20-30	NP-10
	10-16	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	16-38	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	38-47	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5
	47-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5
7:												
Bahem-----------	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-90	20-30	NP-10
	10-16	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	16-38	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	38-47	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5
	47-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-25	NP-5
8:												
Barrymore-------	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	15-20	NP-5
	5-12	Silt loam	CL-ML	A-4	0	0	100	100	90-100	75-90	20-30	5-10
	12-17	Silt loam	CL-ML	A-4	0	0	100	100	90-100	75-90	20-30	5-10
	17-23	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	75-90	15-25	NP-10
	23-27	Bedrock			---	---	---	---	---	---	---	---
Starbuck--------	0-5	Silt loam	ML	A-4	0	0	100	90-100	80-90	70-80	15-20	NP-5
	5-15	Silt loam	ML	A-4	0	0	100	90-100	80-90	70-80	15-20	NP-5
	15-19	Bedrock			---	---	---	---	---	---	---	---

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
9:												
Decker----------	0-10	Fine sandy loam	SM	A-4	0	0	100	90-100	70-85	40-50	15-25	NP-5
	10-15	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	15-23	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	23-29	Silt loam, loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	29-35	Sandy loam	SM	A-4, A-2	0	0	100	90-100	50-70	30-50	15-20	NP-5
	35-51	Fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	55-85	35-70	15-20	NP-5
	51-65	Stratified sand to fine sand	SP-SM, SM	A-2	0	0	90-100	75-100	35-80	10-35	---	NP
10:												
Decker----------	0-10	Loam	SM	A-4	0	0	100	90-100	70-85	40-50	15-25	NP-5
	10-15	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	15-23	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	23-29	Silt loam, loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	29-35	Sandy loam	SM	A-4, A-2	0	0	100	90-100	50-70	30-50	15-20	NP-5
	35-51	Fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	55-85	35-70	15-20	NP-5
	51-65	Stratified sand to fine sand	SP-SM, SM	A-2	0	0	90-100	75-100	35-80	10-35	---	NP
11:												
Decker----------	0-10	Loam	SM	A-4	0	0	100	90-100	70-85	40-50	15-25	NP-5
	10-15	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	15-23	Loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	23-29	Silt loam, loam	CL-ML, ML	A-4	0	0	100	90-100	70-90	50-70	20-30	NP-10
	29-35	Sandy loam	SM	A-4, A-2	0	0	100	90-100	50-70	30-50	15-20	NP-5
	35-51	Fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	55-85	35-70	15-20	NP-5
	51-65	Stratified sand to fine sand	SP-SM, SM	A-2	0	0	90-100	75-100	35-80	10-35	---	NP
12:												
Dolman----------	0-4	Silt loam	CL-ML, ML	A-4	0	0	90-100	85-100	85-100	65-90	20-30	NP-10
	4-14	Silt loam	CL-ML, ML	A-4	0	0	90-100	85-100	85-100	65-90	20-30	NP-10
	14-21	Silt loam	ML	A-4	0	0	95-100	95-100	95-100	80-95	25-35	NP-10
	21-38	Indurated			---	---	---	---	---	---	---	---
	38-60	Stratified gravel to sand	SP-SM	A-1	0	0	65-80	60-75	25-50	5-10	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
13:												
Eoyote----------	0-8	Fine sandy loam	SM	A-4	0	0	100	100	70-85	40-50	15-25	NP-5
	8-18	Fine sandy loam, very fine sandy loam, sandy loam	ML, SM	A-4, A-2	0	0	100	100	60-85	30-55	15-20	NP-5
	18-36	Fine sandy loam, very fine sandy loam, sandy loam	ML, SM	A-4, A-2	0	0	100	100	60-85	30-55	15-20	NP-5
	36-60	Fine sandy loam, very fine sandy loam, sandy loam	ML, SM	A-4, A-2	0	0	100	100	60-85	30-55	15-20	NP-5
14:												
Garsox----------	0-2	Silt loam	ML, CL-ML	A-4	0	0	100	90-100	90-100	80-90	20-30	NP-10
	2-5	Clay loam	CL	A-6	0	0	100	90-100	90-100	80-90	30-40	10-15
	5-10	Silty clay loam, clay loam	CL	A-6	0	0	100	90-100	90-100	70-85	30-40	10-15
	10-16	Loam	CL-ML	A-4	0	0	100	90-100	90-100	60-80	25-30	5-10
	16-25	Sandy loam	SM	A-2, A-4	0	0	100	90-100	75-80	25-40	15-25	NP-5
	25-36	Loamy fine sand	SM	A-2	0	0	100	90-100	50-70	15-25	---	NP
	36-44	Fine sandy loam	SM	A-4	0	0	100	90-100	70-80	40-50	15-25	NP-5
	44-60	Loamy fine sand	SM	A-2	0	0	100	90-100	59-70	15-25	---	NP
15:												
Hoosegow--------	0-4	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	4-9	Loam	CL-ML	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	9-30	Loam, sandy clay loam	CL-ML, CL	A-4, A-6	0	0	100	90-100	75-100	50-80	25-35	5-15
	30-48	Loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	75-100	50-80	25-35	5-15
	48-60	Fine sandy loam	SM	A-4	0	0	100	90-100	50-70	40-55	15-20	NP-5

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
16:												
Hynes-----------	0-4	Silt loam	ML	A-4	0	0	100	95-100	95-100	80-95	15-25	NP-5
	4-16	Silt loam	ML	A-4	0	0	100	95-100	95-100	80-95	15-25	NP-5
	16-30	Silt loam	ML	A-4	0	0	100	95-100	90-100	75-95	15-25	NP-5
	30-41	Silt loam	ML	A-4	0	0	100	95-100	90-100	75-95	15-25	NP-5
	41-53	Silty clay loam, silt loam	CL	A-6	0	0	100	95-100	80-95	75-90	30-40	10-15
	53-64	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	95-100	85-100	15-25	NP-5
17:												
Kecko-----------	0-4	Fine sandy loam	SM	A-4	0	0	100	90-100	80-85	40-50	15-25	NP-5
	4-9	Very fine sandy loam, fine sandy loam, sandy loam	SM	A-4	0	0	100	90-100	65-75	35-50	15-25	NP-5
	9-21	Fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	21-26	Sandy loam, very fine sandy loam, fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	26-42	Very fine sandy loam, sandy loam, fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	42-62	Stratified sand to silt loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	---	NP
18:												
Minveno---------	0-2	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	80-90	15-25	NP-5
	2-11	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	80-90	15-25	NP-5
	11-19	Loam, silt loam	ML	A-4	0	0	90-100	85-100	80-100	80-90	15-25	NP-5
	19-37	Indurated			---	---	---	---	---	---	---	---
	37-41	Bedrock			---	---	---	---	---	---	---	---

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
19:												
Owsel-----------	0-5	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-95	70-85	15-25	NP-10
	5-9	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-95	70-85	15-25	NP-10
	9-15	Silty clay loam	CL	A-6, A-7	0	0	95-100	95-100	90-100	85-95	35-45	15-25
	15-28	Silt loam	ML, CL-ML	A-4	0	0	95-100	95-100	85-95	65-85	15-25	NP-10
	28-37	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	85-95	65-85	15-25	NP-10
	37-54	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	85-95	65-85	15-25	NP-10
	54-68	Fine sandy loam	ML, SM	A-4	0	0-5	95-100	95-100	65-90	35-55	15-20	NP-5
20:												
Paulville-------	0-6	Silt loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
	6-16	Loam, clay loam, silt loam	CL	A-6	0	0	95-100	95-100	80-90	70-85	30-40	10-20
	16-31	Loam, clay loam, silt loam	CL	A-6	0	0	95-100	95-100	80-90	70-85	30-40	10-20
	31-60	Loam, silt loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
McPan-----------	0-6	Loam	ML	A-4	0	0-10	95-100	95-100	75-95	55-70	20-25	NP-5
	6-10	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-15	95-100	95-100	85-95	75-95	25-35	5-15
	10-21	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-15	95-100	95-100	85-95	75-95	25-35	5-15
	21-27	Silt loam	CL-ML	A-4	0	0-25	95-100	90-100	80-90	75-85	20-30	5-10
	27-28	Indurated			---	---	---	---	---	---	---	---
	28-38	Bedrock			---	---	---	---	---	---	---	---
21:												
Pits, gravel----	---	---	---	---	---	---	---	---	---	---	---	---
22:												
Pocatello-------	0-4	Silt loam	ML	A-4	0	0	100	100	95-100	80-95	15-25	NP-5
	4-16	Silt loam	ML	A-4	0	0	100	100	95-100	80-95	15-25	NP-5
	16-38	Silt loam	ML	A-4	0	0	100	100	95-100	80-95	15-25	NP-5
	38-66	Silt loam	ML	A-4	0	0	100	100	95-100	80-95	15-25	NP-5

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
23:												
Portneuf--------	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	9-13	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	13-27	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	27-42	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	42-64	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	15-25	NP-5
24:												
Portneuf--------	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	9-13	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	13-27	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	27-42	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	42-64	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	15-25	NP-5
25:												
Portneuf--------	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	9-13	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	80-95	25-35	5-10
	13-27	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	27-42	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	15-25	NP-5
	42-64	Silt loam	ML	A-4	0	0	100	100	95-100	85-100	15-25	NP-5
26:												
Power-----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	8-17	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	17-31	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	31-54	Loam, silt loam	CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	54-61	Loam, silt loam	CL-ML	A-4	0	0	95-100	90-100	90-100	60-85	20-30	5-10
27:												
Power-----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	8-17	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	17-31	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	31-54	Loam, silt loam	CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	54-61	Loam, silt loam	CL-ML	A-4	0	0	95-100	90-100	90-100	60-85	20-30	5-10

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
28:												
Power-----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	8-17	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	17-31	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	31-54	Loam, silt loam	CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	54-61	Loam, silt loam	CL-ML	A-4	0	0	95-100	90-100	90-100	60-85	20-30	5-10
29:												
Power-----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	8-17	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	17-31	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-35	5-15
	31-54	Loam, silt loam	CL-ML	A-4	0	0	100	100	95-100	75-90	20-30	5-10
	54-61	Loam, silt loam	CL-ML	A-4	0	0	95-100	90-100	90-100	60-85	20-30	5-10
McCain----------	0-3	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-100	75-90	20-30	5-10
	3-6	Silt loam	CL-ML	A-4	0	0	95-100	85-100	80-100	75-95	20-30	5-10
	6-15	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	85-100	80-100	75-95	25-35	5-15
	15-22	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	85-100	80-100	75-95	25-35	5-15
	22-28	Silt loam	CL-ML	A-4	0	0-10	90-100	85-100	75-95	55-75	20-30	5-10
	28-32	Bedrock			---	---	---	---	---	---	---	---
30:												
Quincy----------	0-16	Loamy sand	SM	A-2	0	0	95-100	95-100	80-95	10-30	---	NP
	16-36	Sand, loamy fine sand, loamy sand	SM	A-2	0	0	95-100	95-100	80-95	10-30	---	NP
	36-70	Stratified sand to loamy sand to loamy fine sand	SM	A-2	0	0	95-100	95-100	85-100	10-30	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
31:												
Rad-------------	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	20-25	NP-5
	5-16	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	20-25	NP-5
	16-24	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	20-25	NP-5
	24-34	Silt loam	ML	A-4	0	0	100	100	90-100	80-90	20-25	NP-5
	34-62	Silt loam	ML	A-4	0	0	100	100	80-100	75-90	20-25	NP-5
32:												
Rad-------------	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	20-25	NP-5
	5-16	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	20-25	NP-5
	16-24	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	20-25	NP-5
	24-34	Silt loam	ML	A-4	0	0	100	100	90-100	80-90	20-25	NP-5
	34-62	Silt loam	ML	A-4	0	0	100	100	80-100	75-90	20-25	NP-5
33:												
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
Torriorthents---	0-46	Fine sandy loam	SM	A-4	0	0	95-100	90-100	70-80	40-50	15-20	NP-5
	46-60	Sandy loam, silt loam, clay loam	SM, CL-ML, ML, SC-SM	A-4, A-6	0	0	95-100	90-100	70-90	40-75	20-40	NP-15
34:												
Schodson--------	0-9	Loamy sand	SM	A-2	0	0	100	100	65-75	15-30	---	NP
	9-25	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	45-80	30-40	15-25	NP-5
	25-32	Loamy coarse sand, loamy fine sand	SM, SP-SM	A-1, A-3, A-2	0	0	95-100	90-100	45-80	5-30	---	NP
	32-43	Coarse sand	SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	45-70	0-10	---	NP
	43-60	Coarse sand	SP-SM	A-2, A-1, A-3	0	0	95-100	90-100	45-70	0-10	---	NP
35:												
Schodson--------	0-9	Sandy loam	SM	A-4, A-2	0	0	100	100	60-70	30-40	15-25	NP-5
	9-25	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	45-80	30-40	15-25	NP-5
	25-32	Loamy coarse sand, loamy fine sand	SM, SP-SM	A-2, A-1, A-3	0	0	95-100	90-100	45-80	5-30	---	NP
	32-43	Coarse sand	SP-SM	A-1, A-2, A-3	0	0	95-100	90-100	45-70	0-10	---	NP
	43-60	Coarse sand	SP-SM	A-2, A-1, A-3	0	0	95-100	90-100	45-70	0-10	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
36:												
Sluka-----------	0-8	Silt loam	ML	A-4	0	0	90-100	85-100	75-100	60-90	20-25	NP-5
	8-15	Silt loam	CL-ML	A-4	0	0	95-100	95-100	90-100	80-95	20-30	5-10
	15-23	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	95-100	95-100	90-100	80-95	20-30	5-10
	23-38	Indurated			---	---	---	---	---	---	---	---
	38-48	Silt loam	ML	A-4	0	0	95-100	95-100	85-95	75-90	---	NP
	48-62	Silt loam	ML	A-4	0	0	95-100	95-100	85-95	75-90	---	NP
37:												
Sluka-----------	0-8	Silt loam	ML	A-4	0	0	90-100	85-100	75-100	60-90	20-25	NP-5
	8-15	Silt loam	CL-ML	A-4	0	0	95-100	95-100	90-100	80-95	20-30	5-10
	15-23	Silt loam, very fine sandy loam	CL-ML	A-4	0	0	95-100	95-100	90-100	80-95	20-30	5-10
	23-38	Indurated			---	---	---	---	---	---	---	---
	38-48	Silt loam	ML	A-4	0	0	95-100	95-100	85-95	75-90	---	NP
	48-62	Silt loam	ML	A-4	0	0	95-100	95-100	85-95	75-90	---	NP
38:												
Starbuck--------	0-5	Silt loam	ML	A-4	0	0	100	90-100	80-90	70-80	15-20	NP-5
	5-15	Silt loam	ML	A-4	0	0	100	90-100	80-90	70-80	15-20	NP-5
	15-19	Bedrock			---	---	---	---	---	---	---	---
McPan-----------	0-6	Loam	ML	A-4	0	0-10	95-100	95-100	75-95	55-70	20-25	NP-5
	6-10	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-15	95-100	95-100	85-95	75-95	25-35	5-15
	10-21	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-15	95-100	95-100	85-95	75-95	25-35	5-15
	21-27	Silt loam	CL-ML	A-4	0	0-25	95-100	90-100	80-90	75-85	20-30	5-10
	27-28	Indurated			---	---	---	---	---	---	---	---
	28-38	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
39:												
Taunton---------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	75-90	30-50	20-30	NP-5
	4-12	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	65-95	50-80	20-30	NP-5
	12-19	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	65-95	50-80	20-30	NP-5
	19-25	Silt loam, gravelly loam	ML, SM	A-2, A-4	0	0-10	80-100	60-100	45-95	30-80	20-30	NP-5
	25-29	Indurated			---	---	---	---	---	---	---	---

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
40:												
Taunton---------	0-4	Loam	SM	A-2, A-4	0	0-5	95-100	90-100	75-90	30-50	20-30	NP-5
	4-12	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	65-95	50-80	20-30	NP-5
	12-19	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	65-95	50-80	20-30	NP-5
	19-25	Silt loam, gravelly loam	ML, SM	A-2, A-4	0	0-10	80-100	60-100	45-95	30-80	20-30	NP-5
	25-29	Indurated			---	---	---	---	---	---	---	---
Paulville-------	0-6	Silt loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
	6-16	Loam, clay loam, silt loam	CL	A-6	0	0	95-100	95-100	80-90	70-85	30-40	10-20
	16-31	Loam, clay loam, silt loam	CL	A-6	0	0	95-100	95-100	80-90	70-85	30-40	10-20
	31-60	Loam, silt loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
41:												
Tindahay--------	0-8	Loamy sand	SM	A-2	0	0-5	95-100	90-100	55-85	20-30	---	NP
	8-18	Sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	55-70	30-40	15-25	NP-5
	18-23	Sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	55-70	30-40	15-25	NP-5
	23-27	Loamy sand	SM	A-2	0	0-5	80-100	75-95	55-70	20-30	---	NP
	27-60	Sand, fine gravelly sand	SP-SM, SM	A-1	0	0-5	75-95	60-95	30-50	5-25	---	NP
42:												
Tindahay--------	0-8	Sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	55-85	25-50	15-25	NP-5
	8-18	Sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	55-70	30-40	15-25	NP-5
	18-23	Sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	55-70	30-40	15-25	NP-5
	23-27	Loamy sand	SM	A-2	0	0-5	80-100	75-90	55-70	20-30	---	NP
	27-60	Sand, fine gravelly sand	SP-SM, SM	A-1	0	0-5	75-95	60-95	30-50	5-25	---	NP
43:												
Unkee-----------	0-7	Clay loam	CL	A-6	0	0	95-100	95-100	90-100	70-80	35-50	15-25
	7-46	Clay, silty clay	CH	A-7	0	0	95-100	95-100	90-100	80-95	55-65	30-45
	46-65	Clay, silty clay	CH	A-7	0	0	95-100	95-100	90-100	80-95	55-65	30-45

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
44:												
Vining----------	0-5	Loamy sand	SM	A-2	0-5	0-10	90-100	85-100	60-70	15-25	---	NP
	5-10	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	10-23	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	23-33	Bedrock			---	---	---	---	---	---	---	---
45:												
Vining----------	0-5	Sandy loam	SM	A-4, A-2	0-5	0-10	90-100	85-100	60-75	25-50	15-25	NP-5
	5-10	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	10-23	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	23-33	Bedrock			---	---	---	---	---	---	---	---
46:												
Vining----------	0-5	Sandy loam	SM	A-4, A-2	0-5	0-10	90-100	85-100	60-75	25-50	15-25	NP-5
	5-10	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	10-23	Fine sandy loam, sandy loam	SM	A-2, A-4	0-10	0-10	90-100	80-100	55-75	30-50	15-25	NP-5
	23-33	Bedrock			---	---	---	---	---	---	---	---

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
46:												
Kecko-----------	0-4	Loamy fine sand	SM	A-4	0	0	100	90-100	80-85	40-50	15-25	NP-5
	4-9	Very fine sandy loam, fine sandy loam, sandy loam	SM	A-4	0	0	100	90-100	65-75	35-50	15-25	NP-5
	9-21	Fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	21-26	Sandy loam, very fine sandy loam, fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	26-42	Sandy loam, very fine sandy loam, fine sandy loam, loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	15-25	NP-5
	42-62	Stratified sand to silt loam	ML, SM	A-4	0	0	100	90-100	65-85	35-70	---	NP
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
47:												
Wodskow---------	0-8	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	55-70	25-50	15-20	NP-5
	8-12	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	55-70	25-50	15-20	NP-5
	12-20	Sandy loam, fine sandy loam	SM, ML	A-4, A-2	0	0	95-100	90-100	55-85	30-75	15-20	NP-5
	20-28	Sandy loam, very fine sandy loam	SM, ML	A-4, A-2	0	0	95-100	90-100	55-85	30-75	15-20	NP-5
	28-34	Very fine sandy loam, loam	ML, SM	A-2, A-4	0	0	95-100	90-100	55-75	30-75	15-20	NP-5
	34-40	Very fine sandy loam, sandy loam	SM, ML	A-2, A-4	0	0	95-100	90-100	55-75	30-75	15-20	NP-5
	40-55	Loamy fine sand	SM	A-2	0	0	85-100	85-100	80-95	10-30	---	NP
	55-60	Coarse sand, fine sand	SM	A-2	0	0	85-100	80-100	55-75	10-30	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
48:												
Wodskow---------	0-8	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	55-70	25-50	15-20	NP-5
	8-12	Sandy loam	SM	A-2, A-4	0	0	95-100	90-100	55-70	25-50	15-20	NP-5
	12-20	Sandy loam, fine sandy loam	SM, ML	A-4, A-2	0	0	95-100	90-100	55-85	30-75	15-20	NP-5
	20-28	Sandy loam, very fine sandy loam	SM, ML	A-4, A-2	0	0	95-100	90-100	55-85	30-75	15-20	NP-5
	28-34	Very fine sandy loam, loam	ML, SM	A-2, A-4	0	0	95-100	90-100	55-75	30-75	15-20	NP-5
	34-40	Very fine sandy loam, sandy loam	SM, ML	A-2, A-4	0	0	95-100	90-100	55-75	30-75	15-20	NP-5
	40-55	Loamy fine sand	SM	A-2	0	0	85-100	85-100	80-95	10-30	---	NP
	55-60	Coarse sand, fine sand	SM	A-2	0	0	85-100	80-100	55-75	10-30	---	NP
49:												
Woozle----------	0-10	Fine sandy loam	SM	A-2	0	0	100	100	70-85	30-50	20-30	NP-5
	10-21	Loam	ML	A-4	0	0	100	100	90-100	60-85	30-35	5-15
	21-35	Loam, silt loam, clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	35-42	Loam, silty clay loam, clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	42-47	Loamy fine sand	SP-SM	A-2	0	0	100	95-100	40-50	5-10	---	NP
	47-60	Sandy loam, loamy fine sand, fine sand, gravelly sand	SM	A-2	0	0	85-100	70-100	50-65	15-25	---	NP

Table 12.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
50:												
Woozle----------	0-10	Loam	ML	A-4	0	0	100	100	85-100	60-85	30-35	5-15
	10-21	Loam	ML	A-4	0	0	100	100	90-100	60-85	30-35	5-15
	21-35	Loam, silt loam, clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	35-42	Loam, silty clay loam, clay loam	CL	A-6	0	0	100	100	90-100	70-85	30-40	10-20
	42-47	Loamy fine sand	SP-SM	A-2	0	0	100	95-100	40-50	5-10	---	NP
	47-60	Sandy loam, loamy fine sand, fine sand, gravelly sand	SM	A-2	0	0	85-100	70-100	50-65	15-25	---	NP
51:												
Water-----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 13.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
1:												
Abo-------------------	0-9	10-15	1.50-1.60	0.60-2.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	9-15	30-35	1.40-1.50	0.20-0.60	0.14-0.21	3.0-5.9	0.5-1.0	.37	.37			
	15-19	30-35	1.40-1.50	0.20-0.60	0.14-0.21	3.0-5.9	0.5-1.0	.37	.37			
	19-24	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	24-34	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	34-45	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	45-51	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	51-60	3-8	1.70-2.00	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.17	.24			
2:												
Abo-------------------	0-9	12-20	1.50-1.60	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	4L	86
	9-15	30-35	1.40-1.50	0.20-0.60	0.14-0.21	3.0-5.9	0.5-1.0	.37	.37			
	15-19	30-35	1.40-1.50	0.20-0.60	0.14-0.21	3.0-5.9	0.5-1.0	.37	.37			
	19-24	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	24-34	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	34-45	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	45-51	5-15	1.50-1.60	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.43	.43			
	51-60	3-8	1.70-2.00	6.00-20.00	0.06-0.08	0.0-2.9	0.0-0.5	.17	.24			
3:												
Arloval---------------	0-10	5-10	1.50-1.70	6.00-20.00	0.09-0.11	0.0-2.9	1.0-2.0	.10	.10	5	2	134
	10-23	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	23-35	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	35-52	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	52-60	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
4:												
Arloval---------------	0-10	5-10	1.50-1.70	6.00-20.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	10-23	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	23-35	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	35-52	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
	52-60	5-10	1.60-1.70	6.00-20.00	0.05-0.08	0.0-2.9	0.0-0.5	.17	.24			
5:												
Bahem-----------------	0-10	10-18	1.40-1.50	0.60-2.00	0.16-0.18	0.0-2.9	1.0-3.0	.43	.43	5	4L	86
	10-16	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	16-38	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	38-47	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	47-60	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
6:												
Bahem-----------------	0-10	10-18	1.40-1.50	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	10-16	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	16-38	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	38-47	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	47-60	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
7:												
Bahem-----------------	0-10	10-18	1.40-1.50	0.60-2.00	0.16-0.18	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	10-16	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	16-38	10-18	1.45-1.60	0.60-2.00	0.15-0.17	0.0-2.9	0.0-0.5	.49	.49			
	38-47	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			
	47-60	0-10	1.50-1.60	0.60-2.00	0.14-0.16	0.0-2.9	0.0-0.5	.32	.32			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
8:												
Barrymore-------------	0-5	8-14	1.50-1.60	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	5-12	14-20	1.50-1.60	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	12-17	14-20	1.50-1.60	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-23	8-18	1.45-1.65	0.60-2.00	0.17-0.21	0.0-2.9	0.0-0.5	.43	.43			
	23-27	---	---	---	---	---	---	---	---			
Starbuck--------------	0-5	5-18	1.15-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	5-15	5-18	1.30-1.45	0.60-2.00	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	15-19	---	---	---	---	---	---	---	---			
9:												
Decker----------------	0-10	7-18	1.45-1.60	0.60-2.00	0.07-0.11	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	10-15	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.5-1.0	.32	.32			
	15-23	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	23-29	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	29-35	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	35-51	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	51-65	1-10	1.55-1.70	2.00-6.00	0.09-0.10	0.0-2.9	0.0-0.5	.17	.32			
10:												
Decker----------------	0-10	12-18	1.45-1.60	0.60-2.00	0.07-0.11	0.0-2.9	0.5-1.0	.32	.32	5	4L	86
	10-15	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.5-1.0	.32	.32			
	15-23	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	23-29	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	29-35	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	35-51	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	51-65	1-10	1.55-1.70	2.00-6.00	0.09-0.10	0.0-2.9	0.0-0.5	.17	.32			
11:												
Decker----------------	0-10	12-18	1.45-1.60	0.60-2.00	0.07-0.11	0.0-2.9	0.5-1.0	.32	.32	5	4L	86
	10-15	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.5-1.0	.32	.32			
	15-23	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	23-29	12-18	1.50-1.65	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
	29-35	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	35-51	5-10	1.50-1.70	0.60-2.00	0.07-0.15	0.0-2.9	0.0-0.5	.28	.28			
	51-65	1-10	1.55-1.70	2.00-6.00	0.09-0.10	0.0-2.9	0.0-0.5	.17	.32			
12:												
Dolman----------------	0-4	12-16	1.50-1.60	0.60-2.00	0.17-0.20	0.0-2.9	1.0-2.0	.49	.55	2	5	56
	4-14	12-16	1.50-1.60	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.0	.49	.55			
	14-21	12-24	1.50-1.60	0.60-2.00	0.17-0.20	0.0-2.9	0.5-1.0	.55	.55			
	21-38	---	---	---	---	---	---	---	---			
	38-60	0-5	1.60-1.70	20.00-20.00	0.00-0.00	0.0-2.9	0.0-0.5	.02	.10			
13:												
Eoyote----------------	0-8	10-18	1.30-1.60	2.00-6.00	0.13-0.16	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	8-18	10-18	1.30-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	18-36	10-18	1.30-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	36-60	10-18	1.30-1.60	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
14:												
Garsox----------------	0-2	10-18	1.35-1.45	0.60-2.00	0.14-0.17	0.0-2.9	0.5-1.0	.37	.37	5	5	56
	2-5	27-35	1.30-1.40	0.06-0.20	0.11-0.15	3.0-5.9	0.5-1.0	.37	.37			
	5-10	27-35	1.30-1.40	0.06-0.20	0.11-0.15	3.0-5.9	0.5-1.0	.28	.28			
	10-16	15-22	1.45-1.55	0.60-2.00	0.10-0.13	0.0-2.9	0.0-0.5	.28	.28			
	16-25	5-15	1.45-1.70	0.60-2.00	0.08-0.17	0.0-2.9	0.0-0.5	.20	.20			
	25-36	5-15	1.45-1.70	0.60-2.00	0.08-0.17	0.0-2.9	0.0-0.5	.20	.20			
	36-44	5-15	1.45-1.70	0.60-2.00	0.08-0.17	0.0-2.9	0.0-0.5	.20	.20			
	44-60	5-15	1.45-1.70	0.60-2.00	0.08-0.17	0.0-2.9	0.0-0.5	.20	.20			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
15:												
Hoosegow--------------	0-4	10-15	1.45-1.55	0.60-2.00	0.13-0.19	0.0-2.9	0.8-1.0	.32	.32	4	5	56
	4-9	10-15	1.45-1.55	0.60-2.00	0.13-0.19	0.0-2.9	0.8-1.0	.32	.32			
	9-30	20-27	1.50-1.65	0.60-2.00	0.13-0.20	3.0-5.9	0.5-1.0	.37	.37			
	30-48	15-25	1.55-1.65	0.60-2.00	0.10-0.19	0.0-2.9	0.5-1.0	.28	.28			
	48-60	10-15	1.50-1.60	2.00-6.00	0.10-0.19	0.0-2.9	0.0-0.5	.28	.28			
16:												
Hynes-----------------	0-4	10-15	1.20-1.40	0.60-2.00	0.19-0.21	0.0-3.0	1.0-2.0	.49	.49	5	4L	86
	4-16	10-15	1.20-1.40	0.60-2.00	0.19-0.21	0.0-3.0	0.5-1.0	.49	.49			
	16-30	6-15	1.20-1.40	0.20-0.60	0.17-0.19	0.0-3.0	0.5-1.0	.49	.49			
	30-41	6-15	1.20-1.40	0.20-0.60	0.17-0.19	0.0-3.0	0.5-1.0	.49	.49			
	41-53	24-34	1.15-1.25	0.06-0.20	0.14-0.16	3.0-6.0	0.0-0.5	.37	.37			
	53-64	5-12	1.15-1.35	0.60-2.00	0.19-0.21	0.0-3.0	0.0-0.5	.49	.49			
17:												
Kecko-----------------	0-4	10-18	1.35-1.55	2.00-6.00	0.12-0.14	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	4-9	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	9-21	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	21-26	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	26-42	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-62	5-10	1.35-1.60	2.00-6.00	0.03-0.12	0.0-2.9	0.0-0.5	.10	.10			
18:												
Minveno---------------	0-2	10-15	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43	1	4L	86
	2-11	10-15	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43			
	11-19	10-18	1.25-1.35	0.60-2.00	0.16-0.21	0.0-2.9	0.0-0.5	.43	.49			
	19-37	---	---	---	---	---	---	---	---			
	37-41	---	---	---	---	---	---	---	---			
19:												
Owsel-----------------	0-5	10-20	1.45-1.55	0.60-2.00	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	5-9	24-27	1.45-1.55	0.60-2.00	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49			
	9-15	27-35	1.45-1.55	0.20-0.60	0.15-0.18	3.0-5.9	0.5-1.0	.43	.43			
	15-28	20-27	1.45-1.55	0.20-0.60	0.14-0.16	0.0-2.9	0.5-1.0	.49	.49			
	28-37	20-27	1.45-1.55	0.20-0.60	0.14-0.16	0.0-2.9	0.5-1.0	.49	.49			
	37-54	10-20	1.45-1.55	0.20-0.60	0.14-0.16	0.0-2.9	0.0-0.5	.49	.49			
	54-68	10-15	1.50-1.60	2.00-6.00	0.10-0.12	0.0-2.9	0.0-0.5	.43	.43			
20:												
Paulville-------------	0-6	15-22	1.25-1.30	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	6-16	24-31	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	16-31	24-31	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	31-60	16-24	1.30-1.40	0.60-2.00	0.19-0.21	0.0-2.9	0.0-0.5	.32	.32			
McPan-----------------	0-6	18-25	1.15-1.60	0.60-2.00	0.13-0.19	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	6-10	24-32	1.20-1.50	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.0	.43	.49			
	10-21	24-32	1.20-1.50	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.0	.43	.49			
	21-27	20-26	1.25-1.60	0.60-2.00	0.13-0.20	0.0-2.9	0.0-0.5	.32	.43			
	27-28	---	---	---	---	---	---	---	---			
	28-38	---	---	---	---	---	---	---	---			
21:												
Pits, gravel----------	---	---	---	---	---	---	---	---	---	-	---	---
22:												
Pocatello-------------	0-4	5-15	1.10-1.40	0.60-2.00	0.19-0.21	0.0-2.9	0.8-1.0	.49	.49	5	4L	86
	4-16	5-15	1.10-1.40	0.60-2.00	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	16-38	5-15	1.10-1.40	0.60-2.00	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	38-66	5-15	1.10-1.40	0.60-2.00	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
23:												
Portneuf--------------	0-9	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	4L	86
	9-13	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-27	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	27-42	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	42-64	5-12	1.15-1.45	2.00-6.00	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
24:												
Portneuf--------------	0-9	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	4L	86
	9-13	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-27	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	27-42	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	42-64	5-12	1.15-1.45	2.00-6.00	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
25:												
Portneuf--------------	0-9	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	4L	86
	9-13	12-22	1.20-1.40	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-27	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	27-42	6-13	1.25-1.50	0.20-0.60	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49			
	42-64	5-12	1.15-1.45	2.00-6.00	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
26:												
Power-----------------	0-8	18-22	1.30-1.50	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-17	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	17-31	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	31-54	18-27	1.35-1.55	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.43	.43			
	54-61	15-20	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
27:												
Power-----------------	0-8	18-22	1.30-1.50	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-17	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	17-31	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	31-54	18-27	1.35-1.55	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.43	.43			
	54-61	15-20	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
28:												
Power-----------------	0-8	18-22	1.30-1.50	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-17	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	17-31	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	31-54	18-27	1.35-1.55	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.43	.43			
	54-61	15-20	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
29:												
Power-----------------	0-8	18-22	1.30-1.50	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	8-17	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	17-31	24-35	1.20-1.50	0.20-0.60	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	31-54	18-27	1.35-1.55	0.20-0.60	0.16-0.18	3.0-5.9	0.0-0.5	.43	.43			
	54-61	15-20	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
McCain----------------	0-3	15-22	1.25-1.45	0.60-2.00	0.12-0.20	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	3-6	18-30	1.20-1.40	0.20-0.60	0.17-0.20	3.0-5.9	0.5-1.0	.43	.49			
	6-15	18-30	1.20-1.40	0.20-0.60	0.17-0.20	3.0-5.9	0.5-1.0	.43	.49			
	15-22	18-30	1.20-1.40	0.20-0.60	0.17-0.20	3.0-5.9	0.5-1.0	.43	.49			
	22-28	10-18	1.25-1.45	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.37	.43			
	28-32	---	---	---	---	---	---	---	---			
30:												
Quincy----------------	0-16	0-7	1.25-1.45	6.00-20.00	0.08-0.11	0.0-2.9	1.0-2.0	.32	.32	5	2	134
	16-36	1-7	1.30-1.50	6.00-20.00	0.08-0.11	0.0-2.9	0.0-0.5	.32	.32			
	36-70	1-7	1.50-1.70	6.00-20.00	0.08-0.11	0.0-2.9	0.0-0.5	.32	.32			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
31:												
Rad-------------------	0-5	6-15	1.25-1.45	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	5-16	6-15	1.30-1.50	0.60-2.00	0.17-0.21	0.0-2.9	0.7-2.0	.55	.55			
	16-24	6-15	1.30-1.50	0.60-2.00	0.17-0.21	0.0-2.9	0.7-2.0	.55	.55			
	24-34	6-15	1.30-1.50	0.06-0.20	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-62	10-15	1.50-1.65	0.60-2.00	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
32:												
Rad-------------------	0-5	6-15	1.25-1.45	0.60-2.00	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	5-16	6-15	1.30-1.50	0.60-2.00	0.17-0.21	0.0-2.9	0.7-2.0	.55	.55			
	16-24	6-15	1.30-1.50	0.60-2.00	0.17-0.21	0.0-2.9	0.7-2.0	.55	.55			
	24-34	6-15	1.30-1.50	0.06-0.20	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-62	10-15	1.50-1.65	0.60-2.00	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
33:												
Rock outcrop----------	---	---	---	---	---	---	---	---	---	---	---	---
Torriorthents---------	0-46	10-16	1.40-1.60	2.00-6.00	0.12-0.14	0.0-3.0	0.5-1.0	.20	.20	---	---	---
	46-60	10-32	1.40-1.60	0.20-6.00	0.12-0.20	0.0-6.0	0.0-0.5	.20	.32			
34:												
Schodson--------------	0-9	5-10	1.65-1.75	2.00-6.00	0.06-0.08	0.0-2.9	1.0-2.0	.10	.10	5	2	134
	9-25	7-15	1.65-1.75	6.00-20.00	0.11-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-32	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
	32-43	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
	43-60	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
35:												
Schodson--------------	0-9	7-15	1.65-1.75	2.00-6.00	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	9-25	7-15	1.65-1.75	6.00-20.00	0.11-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-32	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
	32-43	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
	43-60	5-10	1.65-1.75	6.00-20.00	0.08-0.10	0.0-2.9	0.5-1.0	.17	.17			
36:												
Sluka-----------------	0-8	8-12	1.50-1.60	0.60-2.00	0.14-0.20	0.0-2.9	1.0-2.0	.49	.55	3	4L	86
	8-15	12-18	1.25-1.50	0.60-2.00	0.13-0.20	0.0-2.9	0.5-1.0	.49	.49			
	15-23	12-18	1.25-1.50	0.60-2.00	0.13-0.20	0.0-2.9	0.5-1.0	.49	.49			
	23-38	---	---	---	---	---	---	---	---			
	38-48	5-10	1.45-1.60	0.60-2.00	---	0.0-2.9	0.0-0.5	.49	.49			
	48-62	5-10	1.45-1.60	0.60-2.00	---	0.0-2.9	0.0-0.5	.49	.49			
37:												
Sluka-----------------	0-8	8-12	1.50-1.60	0.60-2.00	0.14-0.20	0.0-2.9	1.0-2.0	.49	.55	3	4L	86
	8-15	12-18	1.25-1.50	0.60-2.00	0.13-0.20	0.0-2.9	0.5-1.0	.49	.49			
	15-23	12-18	1.25-1.50	0.60-2.00	0.13-0.20	0.0-2.9	0.5-1.0	.49	.49			
	23-38	---	---	---	---	---	---	---	---			
	38-48	5-10	1.45-1.60	0.60-2.00	---	0.0-2.9	0.0-0.5	.49	.49			
	48-62	5-10	1.45-1.60	0.60-2.00	---	0.0-2.9	0.0-0.5	.49	.49			
38:												
Starbuck--------------	0-5	5-18	1.15-1.30	0.60-2.00	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	5-15	5-18	1.30-1.45	0.60-2.00	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	15-19	---	---	---	---	---	---	---	---			
McPan-----------------	0-6	18-25	1.15-1.60	0.60-2.00	0.13-0.19	0.0-2.9	1.0-2.0	.37	.37	2	6	48
	6-10	24-32	1.20-1.50	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.0	.43	.49			
	10-21	24-32	1.20-1.50	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.0	.43	.49			
	21-27	20-26	1.25-1.60	0.60-2.00	0.13-0.20	0.0-2.9	0.0-0.5	.32	.43			
	27-28	---	---	---	---	---	---	---	---			
	28-38	---	---	---	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
38:												
Rock outcrop	---	---	---	---	---	---	---	---	---	-	---	---
39:												
Taunton	0-4	7-18	1.20-1.40	2.00-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.20	.20	2	3	86
	4-12	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	12-19	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	19-25	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	25-29	---	---	---	---	---	---	---	---			
40:												
Taunton	0-4	7-18	1.20-1.40	2.00-6.00	0.10-0.13	0.0-2.9	1.0-2.0	.32	.32	2	4L	86
	4-12	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	12-19	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	19-25	7-18	1.25-1.45	0.60-6.00	0.09-0.18	0.0-2.9	0.5-1.0	.37	.55			
	25-29	---	---	---	---	---	---	---	---			
Paulville	0-6	15-22	1.25-1.30	0.60-2.00	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	6-16	24-31	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	16-31	24-31	1.30-1.40	0.20-0.60	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
	31-60	16-24	1.30-1.40	0.60-2.00	0.19-0.21	0.0-2.9	0.0-0.5	.32	.32			
41:												
Tindahay	0-8	5-15	1.35-1.45	2.00-6.00	0.08-0.11	0.0-2.9	0.6-1.0	.10	.10	2	2	134
	8-18	12-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.32			
	18-23	12-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.32			
	23-27	0-8	1.45-1.60	20.00-100	0.03-0.08	0.0-2.9	0.0-0.5	.10	.15			
	27-60	0-8	1.45-1.60	20.00-100	0.03-0.08	0.0-2.9	0.0-0.5	.10	.15			
42:												
Tindahay	0-8	12-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.6-1.0	.24	.24	2	3	86
	8-18	12-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.32			
	18-23	12-18	1.35-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.0-0.5	.28	.32			
	23-27	0-8	1.45-1.60	20.00-100	0.03-0.08	0.0-2.9	0.0-0.5	.10	.15			
	27-60	0-8	1.45-1.60	20.00-100	0.03-0.08	0.0-2.9	0.0-0.5	.10	.15			
43:												
Unkee	0-7	30-40	1.10-1.15	0.20-0.60	0.18-0.20	6.0-8.9	1.0-2.0	.37	.37	5	4	86
	7-46	40-60	1.00-1.10	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.32	.32			
	46-65	40-60	1.00-1.10	0.01-0.06	0.14-0.16	6.0-8.9	0.5-1.0	.32	.32			
44:												
Vining	0-5	5-15	1.35-1.55	2.00-6.00	0.08-0.11	0.0-2.9	0.7-1.0	.10	.10	2	2	134
	5-10	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	10-23	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	23-33	---	---	---	---	---	---	---	---			
45:												
Vining	0-5	7-18	1.35-1.55	2.00-6.00	0.10-0.14	0.0-2.9	0.7-1.0	.24	.24	2	3	86
	5-10	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	10-23	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	23-33	---	---	---	---	---	---	---	---			
46:												
Vining	0-5	7-18	1.35-1.55	2.00-6.00	0.10-0.14	0.0-2.9	0.7-1.0	.24	.24	2	3	86
	5-10	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	10-23	7-18	1.40-1.60	2.00-6.00	0.09-0.12	0.0-2.9	0.0-0.5	.20	.32			
	23-33	---	---	---	---	---	---	---	---			

Table 13.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
46:												
Kecko-----------------	0-4	5-10	1.35-1.55	2.00-6.00	0.09-0.11	0.0-2.9	1.0-2.0	.10	.10	5	2	134
	4-9	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	9-21	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	21-26	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	26-42	10-18	1.25-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	42-62	5-10	1.35-1.60	2.00-6.00	0.03-0.12	0.0-2.9	0.0-0.5	.10	.10			
Rock outcrop----------	---	---	---	---	---	---	---	---	---	-	---	---
47:												
Wodskow---------------	0-8	5-15	1.40-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.8-2.0	.24	.24	4	3	86
	8-12	5-15	1.40-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.8-2.0	.24	.24			
	12-20	10-18	1.45-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.24	.24			
	20-28	10-18	1.45-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.24	.24			
	28-34	10-18	1.45-1.55	2.00-6.00	0.15-0.17	0.0-2.9	0.0-0.5	.37	.37			
	34-40	5-15	1.45-1.55	2.00-6.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.24			
	40-55	1-7	1.55-1.65	6.00-20.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.10			
	55-60	0-5	1.55-1.65	6.00-20.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.05			
48:												
Wodskow---------------	0-8	5-15	1.40-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.8-2.0	.24	.24	4	3	86
	8-12	5-15	1.40-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.8-2.0	.24	.24			
	12-20	10-18	1.45-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.24	.24			
	20-28	10-18	1.45-1.60	2.00-6.00	0.13-0.16	0.0-2.9	0.5-1.0	.24	.24			
	28-34	10-18	1.45-1.55	2.00-6.00	0.15-0.17	0.0-2.9	0.0-0.5	.37	.37			
	34-40	5-15	1.45-1.55	2.00-6.00	0.13-0.16	0.0-2.9	0.0-0.5	.24	.24			
	40-55	1-7	1.55-1.65	6.00-20.00	0.06-0.09	0.0-2.9	0.0-0.5	.10	.10			
	55-60	0-5	1.55-1.65	6.00-20.00	0.02-0.05	0.0-2.9	0.0-0.5	.05	.05			
49:												
Woozle----------------	0-10	15-20	1.20-1.45	0.60-2.00	0.14-0.19	0.0-2.9	1.0-2.0	.24	.24	4	3	86
	10-21	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	21-35	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	35-42	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	42-47	1-7	1.30-1.50	6.00-20.00	0.08-0.11	0.0-2.9	0.0-0.5	.43	.43			
	47-60	0-5	1.40-1.65	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.20			
50:												
Woozle----------------	0-10	15-25	1.20-1.45	0.60-2.00	0.14-0.19	0.0-2.9	1.0-2.0	.32	.32	4	6	48
	10-21	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	21-35	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	35-42	24-32	1.25-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	42-47	1-7	1.30-1.50	6.00-20.00	0.08-0.11	0.0-2.9	0.0-0.5	.43	.43			
	47-60	0-5	1.40-1.65	6.00-20.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.20			
51:												
Water-----------------	---	---	---	---	---	---	---	---	---	-	---	---

Table 14.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
1:						
Abo------------------	0-9	10-15	7.4-8.4	0-5	2.0-8.0	0-5
	9-15	20-30	7.4-8.4	5-10	2.0-8.0	0-5
	15-19	20-30	7.4-8.4	5-10	2.0-8.0	0-5
	19-24	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	24-34	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	34-45	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	45-51	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	51-60	1.0-6.0	7.4-8.4	15-25	2.0-8.0	0-5
2:						
Abo------------------	0-9	10-15	7.4-8.4	0-5	2.0-8.0	0-5
	9-15	20-30	7.4-8.4	5-10	2.0-8.0	0-5
	15-19	20-30	7.4-8.4	5-10	2.0-8.0	0-5
	19-24	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	24-34	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	34-45	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	45-51	4.0-10	7.4-8.4	15-25	2.0-8.0	0-5
	51-60	1.0-6.0	7.4-8.4	15-25	2.0-8.0	0-5
3:						
Arloval--------------	0-10	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	10-23	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	23-35	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	35-52	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	52-60	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
4:						
Arloval--------------	0-10	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	10-23	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	23-35	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	35-52	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
	52-60	3.0-8.0	7.4-8.4	0-5	0.0-2.0	0-2
5:						
Bahem----------------	0-10	6.0-15	7.4-8.4	1-10	0.0-2.0	0-2
	10-16	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	16-38	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	38-47	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8
	47-60	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8
6:						
Bahem----------------	0-10	6.0-15	7.4-8.4	1-10	0.0-2.0	0-2
	10-16	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	16-38	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	38-47	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8
	47-60	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8
7:						
Bahem----------------	0-10	6.0-15	7.4-8.4	1-10	0.0-2.0	0-2
	10-16	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	16-38	6.0-15	7.9-8.4	15-25	2.0-8.0	2-8
	38-47	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8
	47-60	1.0-8.0	7.9-8.4	5-15	2.0-8.0	2-8

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
8:						
Barrymore------------	0-5	4.0-10	6.6-7.3	0	0	0
	5-12	8.0-15	6.6-7.3	0	0	0
	12-17	8.0-15	6.6-7.8	0	0	0
	17-23	4.0-15	7.9-8.4	15-25	0	0-5
	23-27	---	---	---	---	---
Starbuck-------------	0-5	5.0-10	6.6-7.8	0	0	0
	5-15	5.0-10	6.6-7.8	0	0	0
	15-19	---	---	---	---	---
9:						
Decker---------------	0-10	10-20	7.9-8.4	0	0.0-2.0	0-5
	10-15	10-20	7.9-9.0	5-10	2.0-8.0	2-10
	15-23	8.0-15	8.5-9.0	15-25	2.0-8.0	5-10
	23-29	5.0-10	8.5-9.0	15-25	2.0-8.0	5-10
	29-35	3.0-8.0	7.9-8.4	5-15	2.0-8.0	2-5
	35-51	3.0-8.0	7.9-8.4	0	2.0-8.0	2-5
	51-65	0.0-4.0	7.9-8.4	0	0.0-2.0	2-5
10:						
Decker---------------	0-10	10-20	7.9-8.4	0	0.0-2.0	0-5
	10-15	10-20	7.9-9.0	5-10	2.0-8.0	2-10
	15-23	8.0-15	8.5-9.0	15-25	2.0-8.0	5-10
	23-29	5.0-10	8.5-9.0	15-25	2.0-8.0	5-10
	29-35	3.0-8.0	7.9-8.4	5-15	2.0-8.0	2-5
	35-51	3.0-8.0	7.9-8.4	0	2.0-8.0	2-5
	51-65	0.0-4.0	7.9-8.4	0	0.0-2.0	2-5
11:						
Decker---------------	0-10	10-20	7.9-8.4	0	4.0-16.0	0-5
	10-15	10-20	7.9-9.0	5-10	2.0-8.0	2-10
	15-23	8.0-15	8.5-9.0	15-25	2.0-8.0	5-10
	23-29	5.0-10	8.5-9.0	15-25	2.0-8.0	5-10
	29-35	3.0-8.0	7.9-8.4	5-15	2.0-8.0	2-5
	35-51	3.0-8.0	7.9-8.4	0	2.0-8.0	2-5
	51-65	0.0-4.0	7.9-8.4	0	0.0-2.0	2-5
12:						
Dolman---------------	0-4	7.0-12	6.6-7.3	0	0	0
	4-14	7.0-12	6.6-7.3	0	0	0
	14-21	7.0-12	6.6-7.8	5-15	0.0-2.0	0-2
	21-38	---	---	---	---	---
	38-60	0.0-3.0	6.6-8.4	0-10	0.0-2.0	0-5
13:						
Eoyote---------------	0-8	10-15	7.4-8.4	5-10	0.0-2.0	0-5
	8-18	7.0-10	7.9-9.0	15-30	0.0-2.0	5-10
	18-36	7.0-10	7.9-9.0	15-30	0.0-2.0	5-10
	36-60	7.0-10	7.9-9.0	15-30	0.0-2.0	5-10
14:						
Garsox---------------	0-2	7.0-10	7.4-7.8	0	4.0-8.0	0-5
	2-5	7.0-10	7.9-9.0	0	4.0-8.0	13-25
	5-10	15-30	7.9-9.6	0	8.0-16.0	13-25
	10-16	9.0-15	9.1-9.6	15-25	8.0-16.0	13-25
	16-25	3.0-9.0	8.5-9.6	5-20	4.0-8.0	10-20
	25-36	3.0-9.0	8.5-9.6	5-20	4.0-8.0	5-10
	36-44	3.0-9.0	8.5-9.6	5-20	4.0-8.0	5-10
	44-60	3.0-9.0	8.5-9.6	5-20	4.0-8.0	5-10

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
15:						
Hoosegow-------------	0-4	6.0-14	6.6-7.3	0	0	0
	4-9	6.0-14	6.6-7.3	0	0	0
	9-30	10-25	6.6-7.3	0	0	0
	30-48	8.0-15	6.6-7.8	0	0	0
	48-60	6.0-12	6.6-7.8	0	0	0
16:						
Hynes----------------	0-4	6.0-15	7.4-8.4	1-15	0	0-2
	4-16	6.0-15	7.4-8.4	1-15	0	0-2
	16-30	3.0-15	7.9-9.0	15-30	2.0-8.0	2-10
	30-41	3.0-15	7.9-9.0	15-30	2.0-8.0	2-10
	41-53	10-25	7.9-9.0	10-30	2.0-8.0	2-10
	53-64	3.0-10	7.9-9.0	5-15	2.0-8.0	2-10
17:						
Kecko----------------	0-4	8.0-20	6.6-7.8	0	0	0
	4-9	6.0-15	6.6-7.8	0	0.0-2.0	0-2
	9-21	6.0-15	6.6-7.8	0	0.0-2.0	0-2
	21-26	6.0-15	7.9-8.4	15-25	0.0-2.0	0-5
	26-42	6.0-15	7.9-8.4	15-25	0.0-2.0	0-5
	42-62	3.0-9.0	7.9-8.4	5-15	0.0-2.0	0-5
18:						
Minveno--------------	0-2	6.0-12	7.4-7.8	0-5	0.0-2.0	0-5
	2-11	6.0-12	7.4-7.8	0-5	0.0-2.0	0-5
	11-19	6.0-12	7.4-8.4	10-15	2.0-4.0	0-5
	19-37	---	---	---	---	---
	37-41	---	---	---	---	---
19:						
Owsel----------------	0-5	10-20	6.6-7.8	0	0	0
	5-9	10-20	6.6-7.8	0	0	0
	9-15	20-30	6.6-7.8	0	0	0
	15-28	15-20	7.4-8.4	5-10	0	0-5
	28-37	15-20	7.4-8.4	10-15	0	0-5
	37-54	5.0-15	7.9-9.0	5-10	0.0-4.0	2-10
	54-68	5.0-10	7.9-9.0	5-10	0.0-4.0	2-10
20:						
Paulville------------	0-6	10-20	6.6-7.3	0	0	0
	6-16	15-25	6.6-7.3	0	0	0
	16-31	15-25	7.4-7.8	0	0	0-2
	31-60	10-15	7.9-8.4	15-30	2.0-4.0	2-5
McPan----------------	0-6	10-20	6.6-7.3	0	0	0
	6-10	10-25	6.6-7.3	0	0	0
	10-21	10-25	6.6-7.3	0	0	0
	21-27	10-20	7.4-8.4	5-10	0.0-2.0	0-5
	27-28	---	---	---	---	---
	28-38	---	---	---	---	---
21:						
Pits, gravel---------	---	---	---	---	---	---
22:						
Pocatello------------	0-4	5.0-15	7.4-8.4	5-15	0.0-2.0	0-5
	4-16	1.0-15	7.9-8.4	5-15	2.0-4.0	2-5
	16-38	1.0-15	7.9-9.0	10-25	2.0-4.0	5-10
	38-66	1.0-15	7.4-9.0	10-20	8.0-16.0	5-10

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
23:						
Portneuf-------------	0-9	3.0-15	7.4-8.4	1-5	0	0-2
	9-13	3.0-15	7.4-9.0	5-10	2.0-8.0	2-10
	13-27	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	27-42	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	42-64	3.0-10	7.9-9.0	10-20	2.0-8.0	2-10
24:						
Portneuf-------------	0-9	3.0-15	7.4-8.4	1-5	0	0-2
	9-13	3.0-15	7.4-9.0	5-10	2.0-8.0	2-10
	13-27	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	27-42	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	42-64	3.0-10	7.9-9.0	10-20	2.0-8.0	2-10
25:						
Portneuf-------------	0-9	3.0-15	7.4-8.4	1-5	0	0-2
	9-13	3.0-15	7.4-9.0	5-10	2.0-8.0	2-10
	13-27	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	27-42	3.0-10	7.9-9.0	15-30	2.0-8.0	2-10
	42-64	3.0-10	7.9-9.0	10-20	2.0-8.0	2-10
26:						
Power----------------	0-8	10-20	6.6-7.3	0	0	0
	8-17	15-30	6.6-7.8	0	0	0
	17-31	15-30	6.6-7.8	0	0	0
	31-54	15-30	7.9-8.4	15-30	0.0-2.0	0-5
	54-61	10-15	7.9-8.4	10-20	0.0-2.0	0-5
27:						
Power----------------	0-8	10-20	6.6-7.3	0	0	0
	8-17	15-30	6.6-7.8	0	0	0
	17-31	15-30	6.6-7.8	0	0	0
	31-54	15-30	7.9-8.4	15-30	0.0-2.0	0-5
	54-61	10-15	7.9-8.4	10-20	0.0-2.0	0-5
28:						
Power----------------	0-8	10-20	6.6-7.3	0	0	0
	8-17	15-30	6.6-7.8	0	0	0
	17-31	15-30	6.6-7.8	0	0	0
	31-54	15-30	7.9-8.4	15-30	0.0-2.0	0-5
	54-61	10-15	7.9-8.4	10-20	0.0-2.0	0-5
29:						
Power----------------	0-8	10-20	6.6-7.3	0	0	0
	8-17	15-30	6.6-7.8	0	0	0
	17-31	15-30	6.6-7.8	0	0	0
	31-54	15-30	7.9-8.4	15-30	0.0-2.0	0-5
	54-61	10-15	7.9-8.4	10-20	0.0-2.0	0-5
McCain---------------	0-3	10-15	6.6-7.8	0	0.0-2.0	0
	3-6	10-25	7.4-7.8	0-10	0.0-2.0	0-5
	6-15	10-25	7.4-8.4	0-10	0.0-2.0	0-5
	15-22	10-25	7.4-8.4	0-10	0.0-2.0	0-5
	22-28	6.0-15	7.4-9.0	15-30	0.0-2.0	2-10
	28-32	---	---	---	---	---
30:						
Quincy---------------	0-16	1.0-4.0	7.4-8.4	0	0	0
	16-36	1.0-4.0	7.4-8.4	0	0	0
	36-70	0.0-4.0	7.4-8.4	0	0	0

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
31:						
Rad	0-5	7.0-12	6.6-7.3	0	0	0
	5-16	7.0-12	7.4-8.4	0	0	0
	16-24	7.0-12	7.9-9.0	5-15	2.0-8.0	2-10
	24-34	3.0-8.0	7.9-9.0	10-15	2.0-8.0	2-10
	34-62	3.0-8.0	7.9-9.0	5-10	2.0-8.0	2-10
32:						
Rad	0-5	7.0-12	6.6-7.3	0	0	0
	5-16	7.0-12	7.4-8.4	0	0	0
	16-24	7.0-12	7.9-9.0	5-15	2.0-8.0	2-10
	24-34	3.0-8.0	7.9-9.0	10-15	2.0-8.0	2-10
	34-62	3.0-8.0	7.9-9.0	5-10	2.0-8.0	2-10
33:						
Rock outcrop	---	---	---	---	---	---
Torriorthents	0-46	6.0-11	6.6-7.8	0	0	0
	46-60	6.0-11	6.6-7.8	0	0	0
34:						
Schodson	0-9	3.0-8.0	7.9-8.4	0-5	0	0-2
	9-25	3.0-8.0	7.9-8.4	0-5	0	0-2
	25-32	3.0-8.0	7.9-8.4	0-5	0	0-2
	32-43	3.0-8.0	7.9-8.4	0-5	0	0-2
	43-60	3.0-8.0	7.9-8.4	0-5	0	0-2
35:						
Schodson	0-9	3.0-8.0	7.9-8.4	0-5	0	0-2
	9-25	3.0-8.0	7.9-8.4	0-5	0	0-2
	25-32	3.0-8.0	7.9-8.4	0-5	0	0-2
	32-43	3.0-8.0	7.9-8.4	0-5	0	0-2
	43-60	3.0-8.0	7.9-8.4	0-5	0	0-2
36:						
Sluka	0-8	7.0-12	6.6-7.8	0-10	0.0-2.0	0
	8-15	7.0-12	7.9-8.4	5-15	0.0-2.0	0-5
	15-23	7.0-12	7.9-8.4	15-20	0.0-2.0	0-5
	23-38	---	---	---	---	---
	38-48	3.0-8.0	7.9-8.4	10-20	0.0-2.0	0-5
	48-62	3.0-8.0	7.9-8.4	10-20	0.0-2.0	0-5
37:						
Sluka	0-8	7.0-12	6.6-7.8	0-10	0.0-2.0	0
	8-15	7.0-12	7.9-8.4	5-15	0.0-2.0	0-5
	15-23	7.0-12	7.9-8.4	15-20	0.0-2.0	0-5
	23-38	---	---	---	---	---
	38-48	3.0-8.0	7.9-8.4	10-20	0.0-2.0	0-5
	48-62	3.0-8.0	7.9-8.4	10-20	0.0-2.0	0-5
38:						
Starbuck	0-5	5.0-10	6.6-7.8	0	0	0
	5-15	5.0-10	6.6-7.8	0	0	0
	15-19	---	---	---	---	---
McPan	0-6	10-20	6.6-7.3	0	0	0
	6-10	10-25	6.6-7.3	0	0	0
	10-21	10-25	6.6-7.3	0	0	0
	21-27	10-20	7.4-8.4	5-10	0.0-2.0	0-5
	27-28	---	---	---	---	---
	28-38	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
38:						
Rock outcrop---------	---	---	---	---	---	---
39:						
Taunton--------------	0-4	4.0-10	6.6-7.3	0	0	0
	4-12	4.0-10	6.6-7.8	0	0	0
	12-19	4.0-10	6.6-7.8	5-10	0	0
	19-25	4.0-10	7.4-9.0	15-25	0.0-2.0	2-10
	25-29	---	---	---	---	---
40:						
Taunton--------------	0-4	4.0-10	6.6-7.3	0	0	0
	4-12	4.0-10	6.6-7.8	0	0	0
	12-19	4.0-10	6.6-7.8	5-10	0	0
	19-25	4.0-10	7.4-9.0	15-25	0.0-2.0	2-10
	25-29	---	---	---	---	---
Paulville------------	0-6	10-20	6.6-7.3	0	0	0
	6-16	15-25	6.6-7.3	0	0	0
	16-31	15-25	7.4-7.8	0	0	0-2
	31-60	10-15	7.9-8.4	15-30	2.0-4.0	2-5
41:						
Tindahay-------------	0-8	10-15	6.6-7.8	0	0	0
	8-18	10-15	6.6-7.8	0	0	0
	18-23	10-15	6.6-8.4	0	0	0
	23-27	0.0-5.0	7.4-8.4	0	0	0-5
	27-60	0.0-5.0	7.4-8.4	0-5	0	0-5
42:						
Tindahay-------------	0-8	10-15	6.6-7.8	0	0	0
	8-18	10-15	6.6-7.8	0	0	0
	18-23	10-15	6.6-8.4	0	0	0
	23-27	0.0-5.0	7.4-8.4	0	0	0-5
	27-60	0.0-5.0	7.4-8.4	0-5	0	0-5
43:						
Unkee----------------	0-7	15-25	7.4-8.4	2-10	2.0-4.0	0-5
	7-46	25-40	7.4-8.4	2-10	2.0-4.0	0-5
	46-65	25-40	7.4-8.4	2-10	2.0-4.0	0-5
44:						
Vining---------------	0-5	5.0-15	6.6-7.8	0	0	0
	5-10	5.0-15	6.6-7.8	0	0	0
	10-23	5.0-15	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
45:						
Vining---------------	0-5	5.0-15	6.6-7.8	0	0	0
	5-10	5.0-15	6.6-7.8	0	0	0
	10-23	5.0-15	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
46:						
Vining---------------	0-5	5.0-15	6.6-7.8	0	0	0
	5-10	5.0-15	6.6-7.8	0	0	0
	10-23	5.0-15	6.6-7.8	0	0	0
	23-33	---	---	---	---	---

Table 14.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbon-ate	Salinity	Sodium adsorp-tion ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
46:						
Kecko	0-4	8.0-20	6.6-7.8	0	0	0
	4-9	6.0-15	6.6-7.8	0	0.0-2.0	0-2
	9-21	6.0-15	6.6-7.8	0	0.0-2.0	0-2
	21-26	6.0-15	7.9-8.4	15-25	0.0-2.0	0-5
	26-42	6.0-15	7.9-8.4	15-25	0.0-2.0	0-5
	42-62	3.0-9.0	7.9-8.4	5-15	0.0-2.0	0-5
Rock outcrop	---	---	---	---	---	---
47:						
Wodskow	0-8	3.0-15	7.4-8.4	0-5	0.0-2.0	2-8
	8-12	3.0-15	7.4-8.4	0-5	2.0-8.0	2-8
	12-20	6.0-15	7.4-8.4	5-10	2.0-8.0	2-8
	20-28	6.0-15	7.4-8.4	5-10	2.0-8.0	2-8
	28-34	6.0-15	7.9-8.4	5-15	2.0-8.0	2-8
	34-40	3.0-6.0	7.9-8.4	5-15	2.0-8.0	2-8
	40-55	1.0-3.0	7.9-8.4	5-10	2.0-8.0	2-8
	55-60	1.0-3.0	7.9-8.4	0-5	0.0-2.0	0-5
48:						
Wodskow	0-8	3.0-15	7.4-8.4	0-5	4.0-16.0	2-8
	8-12	3.0-15	7.4-8.4	0-5	2.0-8.0	2-8
	12-20	6.0-15	7.4-8.4	5-10	2.0-8.0	2-8
	20-28	6.0-15	7.4-8.4	5-10	2.0-8.0	2-8
	28-34	6.0-15	7.9-8.4	5-15	2.0-8.0	2-8
	34-40	3.0-6.0	7.9-8.4	5-15	2.0-8.0	2-8
	40-55	1.0-3.0	7.9-8.4	5-10	2.0-8.0	2-8
	55-60	1.0-3.0	7.9-8.4	0-5	0.0-2.0	0-5
49:						
Woozle	0-10	10-20	7.4-8.4	0	0	0-2
	10-21	15-20	7.4-8.4	0-5	0.0-2.0	0-5
	21-35	15-20	7.4-8.4	15-30	0.0-2.0	0-5
	35-42	15-20	7.4-8.4	15-30	0.0-2.0	0-5
	42-47	2.0-8.0	7.4-8.4	5-15	0.0-2.0	0-5
	47-60	1.0-5.0	7.4-8.4	0-5	0.0-2.0	0-5
50:						
Woozle	0-10	10-20	7.4-8.4	0	0	0-2
	10-21	15-20	7.4-8.4	0-5	0.0-2.0	0-5
	21-35	15-20	7.4-8.4	15-30	0.0-2.0	0-5
	35-42	15-20	7.4-8.4	15-30	0.0-2.0	0-5
	42-47	2.0-8.0	7.4-8.4	5-15	0.0-2.0	0-5
	47-60	1.0-5.0	7.4-8.4	0-5	0.0-2.0	0-5
51:						
Water	---	---	---	---	---	---

Table 15.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
1:									
Abo	C								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	2.8-3.7	>6.0	---	---	None	---	None
		July	2.0-2.8	>6.0	---	---	None	---	None
		August	2.8-3.7	>6.0	---	---	None	---	None
		September	3.7-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
2:									
Abo	C								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	2.8-3.7	>6.0	---	---	None	---	None
		July	2.0-2.8	>6.0	---	---	None	---	None
		August	2.8-3.7	>6.0	---	---	None	---	None
		September	3.7-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
3:									
Arloval	A								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	1.9-2.9	>6.0	---	---	None	---	None
		July	0.8-1.9	>6.0	---	---	None	---	None
		August	1.9-2.9	>6.0	---	---	None	---	None
		September	2.9-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
4:									
Arloval	A								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	1.9-2.9	>6.0	---	---	None	---	None
		July	0.8-1.9	>6.0	---	---	None	---	None
		August	1.9-2.9	>6.0	---	---	None	---	None
		September	2.9-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
5:									
Bahem	B								
		All months	---	---	---	---	None	---	None
6:									
Bahem	B								
		All months	---	---	---	---	None	---	None
7:									
Bahem	B								
		All months	---	---	---	---	None	---	None
8:									
Barrymore	C								
		All months	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
8:									
Starbuck	D								
		All months	---	---	---	---	None	---	None
9:									
Decker	C								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	2.9-4.3	>6.0	---	---	None	---	None
		July	2.4-2.9	>6.0	---	---	None	---	None
		August	2.9-4.3	>6.0	---	---	None	---	None
		September	2.9-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
10:									
Decker	C								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	2.9-4.3	>6.0	---	---	None	---	None
		July	2.4-2.9	>6.0	---	---	None	---	None
		August	2.9-4.3	>6.0	---	---	None	---	None
		September	2.9-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
11:									
Decker	C								
		April	4.3-5.0	>6.0	---	---	None	---	None
		May	4.3-5.0	>6.0	---	---	None	---	None
		June	2.9-4.3	>6.0	---	---	None	---	None
		July	2.4-2.9	>6.0	---	---	None	---	None
		August	2.9-4.3	>6.0	---	---	None	---	None
		September	2.9-4.3	>6.0	---	---	None	---	None
		October	4.3-5.0	>6.0	---	---	None	---	None
12:									
Dolman	C								
		All months	---	---	---	---	None	---	None
13:									
Eoyote	B								
		All months	---	---	---	---	None	---	None
14:									
Garsox	D								
		April	3.7-5.0	>6.0	---	---	None	---	None
		May	3.7-5.0	>6.0	---	---	None	---	None
		June	3.0-3.7	>6.0	---	---	None	---	None
		July	2.1-3.0	>6.0	---	---	None	---	None
		August	3.0-3.7	>6.0	---	---	None	---	None
		September	3.0-3.7	>6.0	---	---	None	---	None
		October	3.7-5.0	>6.0	---	---	None	---	None
15:									
Hoosegow	B								
		All months	---	---	---	---	None	---	None
16:									
Hynes	B								
		All months	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
17:									
Kecko	B								
		All months	---	---	---	---	None	---	None
18:									
Minveno	D								
		All months	---	---	---	---	None	---	None
19:									
Owsel	B								
		All months	---	---	---	---	None	---	None
20:									
Paulville	B								
		All months	---	---	---	---	None	---	None
McPan	C								
		All months	---	---	---	---	None	---	None
21:									
Pits, gravel	---								
		All months	---	---	---	---	None	---	None
22:									
Pocatello	B								
		All months	---	---	---	---	None	---	None
23:									
Portneuf	B								
		All months	---	---	---	---	None	---	None
24:									
Portneuf	B								
		All months	---	---	---	---	None	---	None
25:									
Portneuf	B								
		All months	---	---	---	---	None	---	None
26:									
Power	B								
		All months	---	---	---	---	None	---	None
27:									
Power	B								
		All months	---	---	---	---	None	---	None
28:									
Power	B								
		All months	---	---	---	---	None	---	None
29:									
Power	B								
		All months	---	---	---	---	None	---	None
McCain	C								
		All months	---	---	---	---	None	---	None
30:									
Quincy	A								
		All months	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
31:									
Rad-----------------------	C								
		All months	---	---	---	---	None	---	None
32:									
Rad-----------------------	C								
		All months	---	---	---	---	None	---	None
33:									
Rock outcrop--------------	---								
		All months	---	---	---	---	None	---	None
Torriorthents-------------	---								
		All months	---	---	---	---	None	---	None
34:									
Schodson------------------	C								
		April	3.6-5.0	>6.0	---	---	None	---	None
		May	3.6-5.0	>6.0	---	---	None	---	None
		June	2.7-3.6	>6.0	---	---	None	---	None
		July	2.1-2.7	>6.0	---	---	None	---	None
		August	2.7-3.6	>6.0	---	---	None	---	None
		September	2.7-3.6	>6.0	---	---	None	---	None
		October	3.6-5.0	>6.0	---	---	None	---	None
35:									
Schodson------------------	C								
		April	3.6-5.0	>6.0	---	---	None	---	None
		May	3.6-5.0	>6.0	---	---	None	---	None
		June	2.7-3.6	>6.0	---	---	None	---	None
		July	2.1-2.7	>6.0	---	---	None	---	None
		August	2.7-3.6	>6.0	---	---	None	---	None
		September	2.7-3.6	>6.0	---	---	None	---	None
		October	3.6-5.0	>6.0	---	---	None	---	None
36:									
Sluka---------------------	C								
		All months	---	---	---	---	None	---	None
37:									
Sluka---------------------	C								
		All months	---	---	---	---	None	---	None
38:									
Starbuck------------------	D								
		All months	---	---	---	---	None	---	None
McPan---------------------	C								
		All months	---	---	---	---	None	---	None
Rock outcrop--------------	---								
		All months	---	---	---	---	None	---	None
39:									
Taunton-------------------	C								
		All months	---	---	---	---	None	---	None
40:									
Taunton-------------------	C								
		All months	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
40:									
Paulville	B								
		All months	---	---	---	---	None	---	None
41:									
Tindahay	B								
		All months	---	---	---	---	None	---	None
42:									
Tindahay	B								
		All months	---	---	---	---	None	---	None
43:									
Unkee	B								
		February	---	---	0.1-0.3	Long	Frequent	---	None
		March	---	---	0.1-0.3	Long	Frequent	---	None
44:									
Vining	C								
		All months	---	---	---	---	None	---	None
45:									
Vining	C								
		All months	---	---	---	---	None	---	None
46:									
Vining	C								
		All months	---	---	---	---	None	---	None
Kecko	B								
		All months	---	---	---	---	None	---	None
Rock outcrop	---								
		All months	---	---	---	---	None	---	None
47:									
Wodskow	C								
		April	4.6-5.0	>6.0	---	---	None	---	None
		May	4.6-5.0	>6.0	---	---	None	---	None
		June	2.8-3.3	>6.0	---	---	None	---	None
		July	2.3-2.8	>6.0	---	---	None	---	None
		August	2.8-3.3	>6.0	---	---	None	---	None
		September	3.3-4.6	>6.0	---	---	None	---	None
		October	4.6-5.0	>6.0	---	---	None	---	None
48:									
Wodskow	C								
		April	4.6-5.0	>6.0	---	---	None	---	None
		May	4.6-5.0	>6.0	---	---	None	---	None
		June	2.8-3.3	>6.0	---	---	None	---	None
		July	2.3-2.8	>6.0	---	---	None	---	None
		August	2.8-3.3	>6.0	---	---	None	---	None
		September	3.3-4.6	>6.0	---	---	None	---	None
		October	4.6-5.0	>6.0	---	---	None	---	None
49:									
Woozle	B								
		All months	---	---	---	---	None	---	None

Table 15.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
50:									
Woozle	B								
		All months	---	---	---	---	None	---	None
51:									
Water	---								
		All months	---	---	---	---	None	---	None

Table 16.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
1:									
Abo	---	---	---	---	0	---	High	High	Low
2:									
Abo	---	---	---	---	0	---	High	High	Low
3:									
Arloval	---	---	---	---	0	---	Moderate	Moderate	Low
4:									
Arloval	---	---	---	---	0	---	Moderate	Moderate	Low
5:									
Bahem	---	---	---	---	0	---	Low	High	Low
6:									
Bahem	---	---	---	---	0	---	Low	High	Low
7:									
Bahem	---	---	---	---	0	---	Low	High	Low
8:									
Barrymore	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	Moderate	Low
Starbuck	Bedrock (lithic)	12-20	---	Indurated	0	---	Low	Moderate	Low
9:									
Decker	---	---	---	---	0	---	High	High	Low
10:									
Decker	---	---	---	---	0	---	High	High	Low
11:									
Decker	---	---	---	---	0	---	High	High	Low
12:									
Dolman	Duripan	20-40	4-17	Indurated	0	---	Low	High	Low
13:									
Eoyote	---	---	---	---	0	---	Low	High	Moderate

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
14:									
Garsox	---	---	---	---	0	---	High	High	Moderate
15:									
Hoosegow	---	---	---	---	0	---	Low	Moderate	Low
16:									
Hynes	---	---	---	---	0	---	Low	High	Low
17:									
Kecko	---	---	---	---	0	---	Low	High	Low
18:									
Minveno	Duripan Bedrock (lithic)	10-20 20-40	4-18 ---	Indurated Indurated	0	---	Low	High	Low
19:									
Owsel	---	---	---	---	0	---	Low	High	Low
20:									
Paulville	---	---	---	---	0	---	Low	High	Low
McPan	Duripan Bedrock (lithic)	20-39 21-40	1-3 ---	Indurated Indurated	0	---	Low	High	Low
21:									
Pits, gravel	---	---	---	---	---	---	---	---	---
22:									
Pocatello	---	---	---	---	0	---	Low	High	Low
23:									
Portneuf	---	---	---	---	0	---	Low	High	Low
24:									
Portneuf	---	---	---	---	0	---	Low	High	Low
25:									
Portneuf	---	---	---	---	0	---	Low	High	Low
26:									
Power	---	---	---	---	0	---	Low	High	Low
27:									
Power	---	---	---	---	0	---	Low	High	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
28:									
Power	---	---	---	---	0	---	Low	High	Low
29:									
Power	---	---	---	---	0	---	Low	High	Low
McCain	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	High	Low
30:									
Quincy	---	---	---	---	0	---	Low	High	Low
31:									
Rad	---	---	---	---	0	---	Low	High	Low
32:									
Rad	---	---	---	---	0	---	Low	High	Low
33:									
Rock outcrop	---	---	---	---	---	---	---	---	---
Torriorthents	Bedrock (lithic)	10-80	---	Indurated	0	---	Low	High	Low
34:									
Schodson	---	---	---	---	0	---	Moderate	Moderate	Low
35:									
Schodson	---	---	---	---	0	---	Moderate	Moderate	Low
36:									
Sluka	Duripan	20-40	4-17	Indurated	0	---	Low	High	Low
37:									
Sluka	Duripan	20-40	4-17	Indurated	0	---	Low	High	Low
38:									
Starbuck	Bedrock (lithic)	12-20	---	Indurated	0	---	Low	Moderate	Low
McPan	Duripan Bedrock (lithic)	20-39 21-40	1-3 ---	Indurated Indurated	0	---	Low	High	Low
Rock outcrop	---	---	---	---	---	---	---	---	---
39:									
Taunton	Duripan	20-40	4-17	Indurated	0	---	Low	High	Low

Table 16.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
40:									
Taunton	Duripan	20-40	4-17	Indurated	0	---	Low	High	Low
Paulville	---	---	---	---	0	---	Low	High	Low
41:									
Tindahay	---	---	---	---	0	---	Low	Moderate	Low
42:									
Tindahay	---	---	---	---	0	---	Low	Moderate	Low
43:									
Unkee	---	---	---	---	---	---	Low	High	Low
44:									
Vining	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	High	Low
45:									
Vining	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	High	Low
46:									
Vining	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	High	Low
Kecko	---	---	---	---	0	---	Low	High	Low
Rock outcrop	---	---	---	---	---	---	---	---	---
47:									
Wodskow	---	---	---	---	0	---	Moderate	High	Low
48:									
Wodskow	---	---	---	---	0	---	Moderate	High	Low
49:									
Woozle	---	---	---	---	0	---	Low	High	Low
50:									
Woozle	---	---	---	---	0	---	Low	High	Low
51:									
Water	---	---	---	---	---	---	---	---	---

Table 17.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Abo	Fine-loamy, mixed, superactive, mesic Aquic Calciargids
Arloval	Mixed, mesic Typic Psammaquents
Bahem	Coarse-silty, mixed, superactive, mesic Xeric Haplocalcids
Barrymore	Coarse-silty, mixed, superactive, mesic Xeric Haplocalcids
*Decker	Fine-loamy, mixed, superactive, mesic Aquic Haplocalcids
Dolman	Coarse-silty, mixed, superactive, mesic Xeric Haplodurids
Eoyote	Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids
Garsox	Fine-loamy, mixed, superactive, mesic Aquic Natrargids
Hoosegow	Fine-loamy, mixed, superactive, mesic Xeric Haplargids
Hynes	Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocalcids
Kecko	Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids
*McCain	Fine-silty, mixed, superactive, mesic Petronodic Xeric Calciargids
McPan	Fine-silty, mixed, superactive, mesic Xeric Argidurids
Minveno	Loamy, mixed, superactive, mesic, shallow Xeric Haplodurids
Owsel	Fine-silty, mixed, superactive, mesic Durinodic Xeric Haplargids
Paulville	Fine-loamy, mixed, superactive, mesic Xeric Calciargids
Pocatello	Coarse-silty, mixed (calcareous), superactive, mesic Xeric Torriorthents
Portneuf	Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocalcids
Power	Fine-silty, mixed, superactive, mesic Xeric Calciargids
Quincy	Mixed, mesic Xeric Torripsamments
*Rad	Coarse-silty, mixed, superactive, mesic Durinodic Xeric Haplocambids
Schodson	Coarse-loamy, mixed, superactive, mesic Xeric Aquicambids
Sluka	Coarse-silty, mixed, superactive, mesic Xeric Haplodurids
Starbuck	Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids
Taunton	Coarse-loamy, mixed, superactive, mesic Xeric Haplodurids
Tindahay	Sandy, mixed, mesic Xeric Torriorthents
Torriorthents	Torriorthents
Unkee	Fine, smectitic, mesic Chromic Haplotorrerts
Vining	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Wodskow	Coarse-loamy, mixed, superactive, mesic Aquic Haplocalcids
Woozle	Fine-loamy, mixed, superactive, mesic Xeric Calciargids

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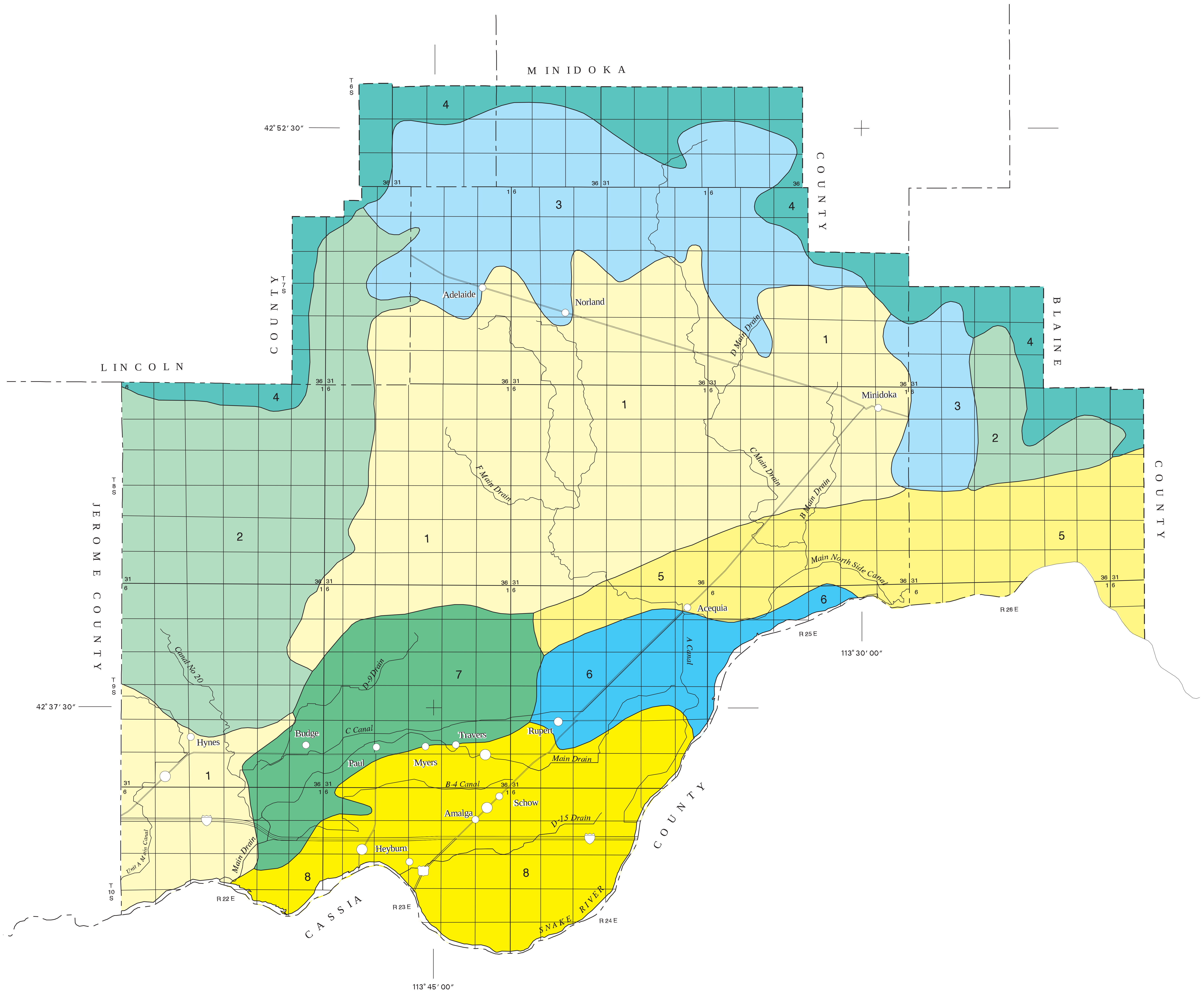
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COUNTY
LINCOLN
COUNTY
BLAINE
COUNTY
JEROME COUNTY
CASSIA
COUNTY
N
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113° 30′ 00″
113° 45′ 00″
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
R 22 E
R 23 E
R 24 E
R 25 E
R 26 E
1
2
3
4
5
6
7
8
Adelaide
Norland
Minidoka
Acequia
Rupert
Hynes
Budge
Paul
Travers
Myers
Schow
Amalga
Heyburn
D Main Drain
C Main Drain
E Main Drain
B Main Drain
Main North Side Canal
A Canal
D-9 Drain
C Canal
B-4 Canal
Main Drain
D-15 Drain
Canal No 20
Unit A Main Canal
SNAKE RIVER
36 31
1 6

SOIL LEGEND*

DOMINANTLY LEVEL TO GENTLY SLOPING SOILS THAT ARE SHALLOW AND MODERATELY DEEP OVER A HARDPAN, SHALLOW AND MODERATELY DEEP OVER BEDROCK, AND VERY DEEP, AND FORMED IN ALLUVIUM; ON TERRACES, HILLSLOPES, AND TOESLOPES

1	Portneuf-Sluka
2	Power-McCain-Paulville
3	Minveno
4	Starbuck-McPan

DOMINANTLY LEVEL TO GENTLY SLOPING SOILS THAT ARE MODERATELY DEEP OVER BEDROCK AND VERY DEEP, AND FORMED IN BONNEVILLE FLOOD DEPOSITS; ON TERRACES

5	Vining-Kecko-Rock outcrop
6	Tindahay
7	Woozle

DOMINANTLY LEVEL AND NEARLY LEVEL, VERY DEEP SOILS THAT ARE WET AND FORMED IN ALLUVIUM; ON TERRACES

8	Wodskow-Decker-Schodson

*The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 2002

Each area outlined on this map consists of more than one kind of soil. The map is meant for general planning rather than a basis for decisions on the use of specific tracts.

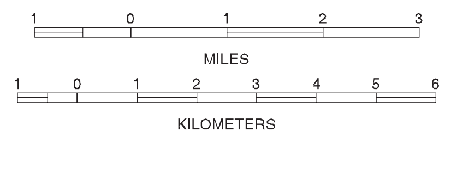
SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UNIVERSITY OF IDAHO, COLLEGE OF AGRICULTURE
IDAHO SOIL CONSERVATION COMMISSION

GENERAL SOIL MAP
MINIDOKA AREA, IDAHO
Including parts of Minidoka, Blaine, and Lincoln Counties

Scale 1:126720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2
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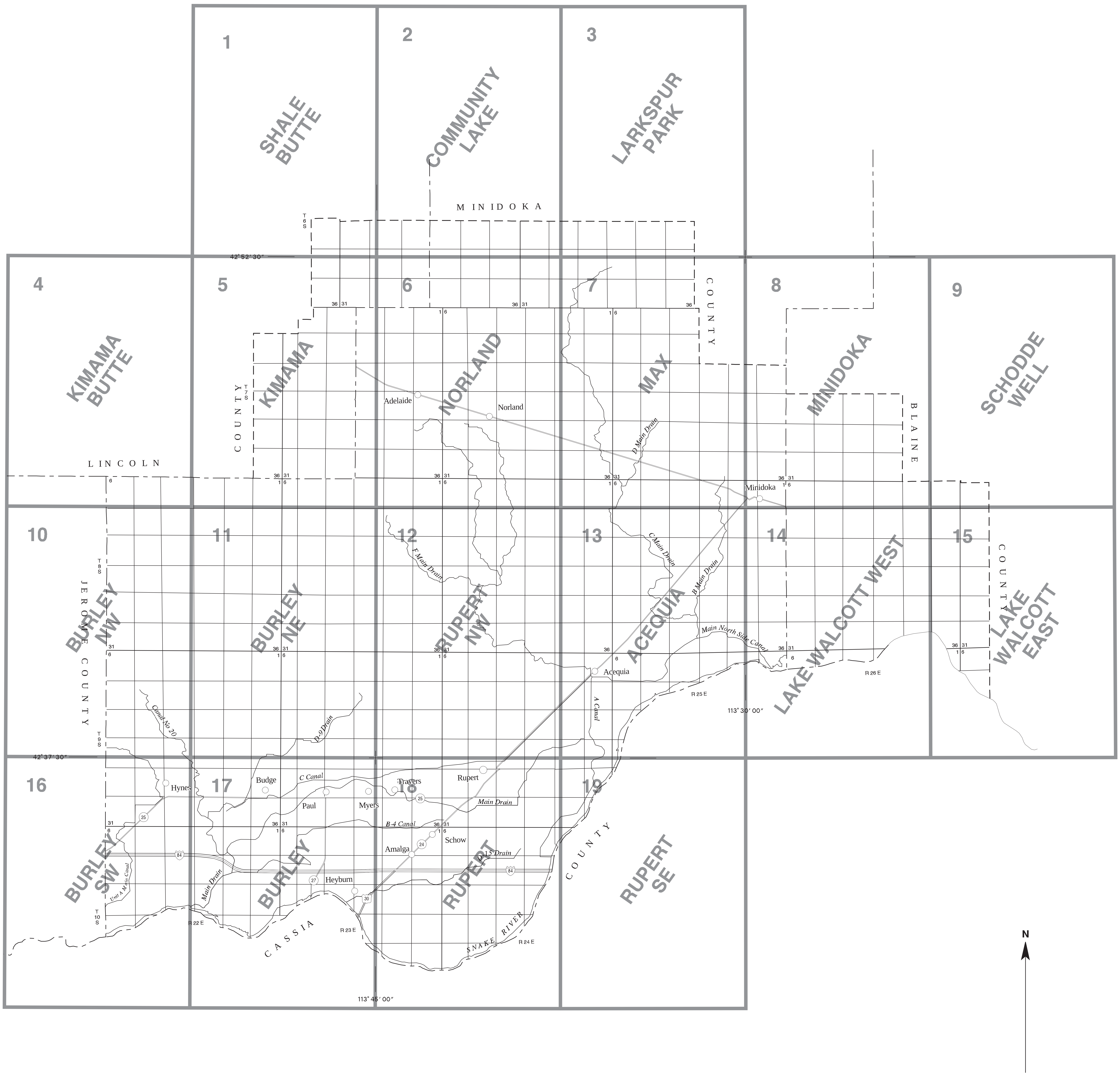
5
6
KILOMETERS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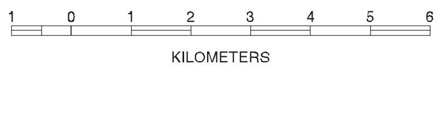
COMMUNITY LAKE
3
LARKSPUR PARK
4
KIMAMA BUTTE
5
KIMAMA
6
NORLAND
7
MAX
8
MINIDOKA
9
SCHODDE WELL
10
BURLEY NW
11
BURLEY NE
12
RUPERT NW
13
ACEQUIA
14
LAKE WALCOTT WEST
15
LAKE WALCOTT EAST
16
BURLEY SW
17
BURLEY
18
RUPERT
19
RUPERT SE
MINIDOKA
COUNTY
LINCOLN
COUNTY
BLAINE
COUNTY
JEROME COUNTY
CASSIA
COUNTY
42°52'30"
42°37'30"
113°30'00"
113°45'00"
T 8 S
T 7 S
T 9 S
T 10 S
R 22 E
R 23 E
R 24 E
R 25 E
R 26 E
Adelaide
Norland
Minidoka
Acequia
Hynes
Budge
Paul
Myers
Travers
Rupert
Amalga
Schow
Heyburn
D Main Drain
C Main Drain
B Main Drain
E Main Drain
Main North Side Canal
A Canal
Canal No 20
D-9 Drain
C Canal
B-4 Canal
Main Drain
S Drain
Unit A Main Canal
SNAKE RIVER
25
24
27
30
84
N

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS
MINIDOKA AREA, IDAHO
Including parts of Minidoka, Blaine, and Lincoln Counties

Scale 1:126720


1
0
1
2
3
MILES
1
0
1
2
3
4
5
6
KILOMETERS

Soil Survey of Minidoka Area, Idaho, Parts of Minidoka, Blaine, and Lincoln Counties (ID702)

Map symbol	Soil name
1	Abo sandy loam, 0 to 2 percent slopes
2	Abo loam, 0 to 2 percent slopes
3	Arloval loamy fine sand, 0 to 2 percent slopes
4	Arloval sandy loam, 0 to 2 percent slopes
5	Bahem silt loam, 1 to 4 percent slopes
6	Bahem silt loam, 4 to 8 percent slopes
7	Bahem silt loam, 8 to 12 percent slopes
8	Barrymore-Starbuck complex, 1 to 4 percent slopes
9	Decker fine sandy loam, 0 to 2 percent slopes
10	Decker loam, 0 to 2 percent slopes
11	Decker loam, saline, 0 to 2 percent slopes
12	Dolman silt loam, 1 to 4 percent slopes
13	Eoyote fine sandy loam, 0 to 2 percent slopes
14	Garsox silt loam, 0 to 2 percent slopes
15	Hoosegow loam, 6 to 25 percent slopes
16	Hynes silt loam, 0 to 2 percent slopes
17	Kecko fine sandy loam, 1 to 4 percent slopes
18	Minveno silt loam, 1 to 8 percent slopes
19	Owsel silt loam, 1 to 4 percent slopes
20	Paulville-McPan complex, 1 to 4 percent slopes
21	Pits, gravel
22	Pocatello silt loam, 12 to 30 percent slopes
23	Portneuf silt loam, 0 to 1 percent slopes
24	Portneuf silt loam, 1 to 4 percent slopes
25	Portneuf silt loam, 4 to 8 percent slopes
26	Power silt loam, 1 to 4 percent slopes
27	Power silt loam, 4 to 8 percent slopes
28	Power silt loam, 8 to 12 percent slopes
29	Power-McCain complex, 1 to 6 percent slopes
30	Quincy loamy sand, 1 to 8 percent slopes
31	Rad silt loam, 1 to 4 percent slopes
32	Rad silt loam, 8 to 15 percent slopes
33	Rock outcrop-Torriorthents complex, very steep
34	Schodson loamy sand, 0 to 1 percent slopes
35	Schodson sandy loam, 0 to 1 percent slopes
36	Sluka silt loam, 1 to 4 percent slopes
37	Sluka silt loam, 4 to 8 percent slopes
38	Starbuck-McPan-Rock outcrop complex, 2 to 20 percent slopes
39	Taunton fine sandy loam, 1 to 4 percent slopes
40	Taunton-Paulville complex, 1 to 4 percent slopes
41	Tindahay loamy sand, 0 to 1 percent slopes
42	Tindahay sandy loam, 0 to 1 percent slopes
43	Unkee clay loam, 0 to 1 percent slopes
44	Vining loamy sand, 1 to 8 percent slopes
45	Vining sandy loam, 1 to 8 percent slopes
46	Vining-Kecko-Rock outcrop complex, 1 to 8 percent slopes
47	Wodskow sandy loam, 0 to 2 percent slopes
48	Wodskow sandy loam, saline, 0 to 2 percent slopes
49	Woozle fine sandy loam, 0 to 1 percent slopes
50	Woozle loam, 0 to 1 percent slopes
51	Water

NRCS-SOI-37a
REVISED MAY 2001

Soil Survey Area :Minidoka

State:Idaho

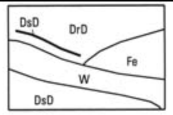
FEATURE AND SYMBOL LEGEND FOR SOIL SURVEY

U.S. DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

Date: February 2005

SOIL SURVEY FEATURES

SOIL DELINEATIONS AND LABELS	

STANDARD LANDFORM AND MISCELLANEOUS SURFACE FEATURES

Bedrock escarpment	▼▲▼▲▼▲▼▲▼▲▼▲
Non-bedrock escarpment	AVAVAVAVAVAVA
Gully	∿∿∿∿∿
Levee	ıııııııııııııııı
Short steep slope	....
Blowout	⊍
Borrow pit	⊠
Clay spot	✲
Closed depression	◆
Gravel pit	✕
Gravely spot	∴
Landfill	◬
Lava flow	Λ
Marsh or swamp	ѱ
Mine or quarry	⚒
Miscellaneous water	◎
Perennial water	⊙
Rock outcrop	∨
Saline spot	✚
Sandy spot	⁙
Severely eroded spot	≑
Sinkhole	◊
Slide or slip	ʒ
Sodic spot	⌀
Spoil area	≡
Stony spot	o
Vary stony spot	ꝏ
Wet spot	ψ

AD HOC FEATURES

	1	∢
	2	⌑
	3	□
	4	⊠
	5	⌑
	6	◾
	7	⧗
	8	◪
	9	▣
	10	⊖
	11	⊗
	12	⌓
	13	◡
	14	◒
	15	ɤ
	16	⅄
	17	△
	18	✳
	19	⧗
	20	⁂
	21	⊡
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	23	♁
	24	◒
	25	◐
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	29	⊠
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	33	◬
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	35	⌽
	36	⊹
	37	✦
	38	⊡
	39	▪
	40	⌗
	41	•|•
	42	⋕
	43	<
	44	◓

CULTURAL FEATURES (Optional)

National, state or providence	——— — — —
County or parish	——— – ———
County or parish	——— – ———
Reservation (national or state forest or park)	——— - ———
Limit of soil survey (label) and/or denied access area	————

Field sheet matchline and neatline	————
Public Land Survey System Section Boundary	————
Public Land Survey System Section Corner Tics.	∟ ⊥ ┼

TRANSPORTATION

Divided road Normally not shown	═══════
Other road Normally not shown	————
Trail Normally not shown	— — — — — — -

ROAD EMBLEMS

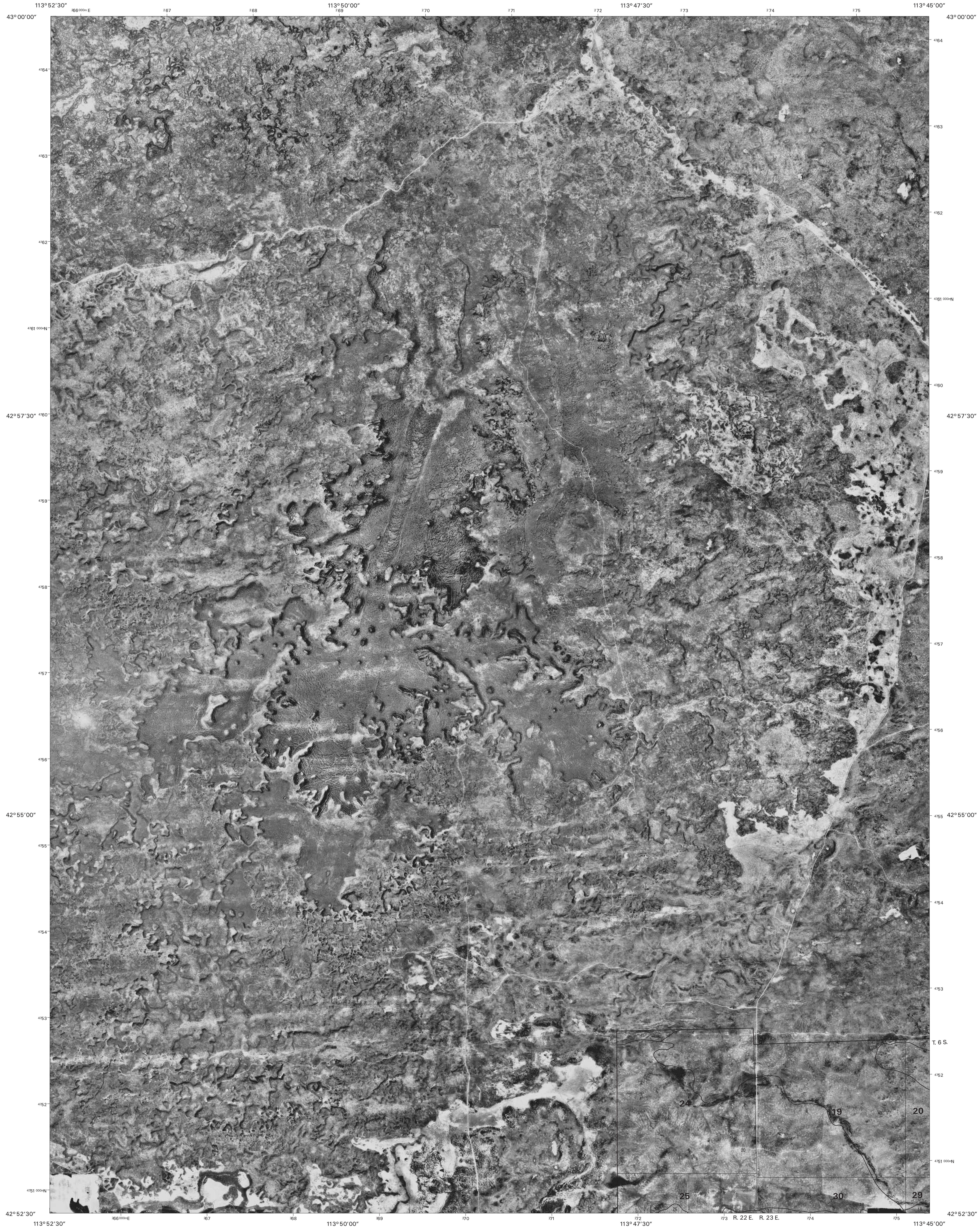
Interstate	⛉
Federal	⛉
State	○
County, farm or ranch	▭

LOCATED OBJECTS

Airport, airfield	✈
Cemetery	✝
Church	⛪
Farmstead, house (omit in urban areas)	■
Lighthouse	♖
Located object (Label)	⊙ Ranger Station
Lookout tower	⛫
Oil and/or natural gas well	♙
Other Religion (label)	▲ Mt. Carmel
School	⛪
Soil sample site (compiled only not published)	Ⓢ
Tank (label)	● Petroleum
Windmill	✕

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
SHALE BUTTE QUADRANGLE
SHEET NUMBER 1 OF 19



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42° 57′30″
42° 55′00″
42° 52′30″
4764
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4761 000m N
4760
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4755
4754
4753
4752
4751 000m N
T. 6 S.
R. 22 E.
R. 23 E.
24
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25
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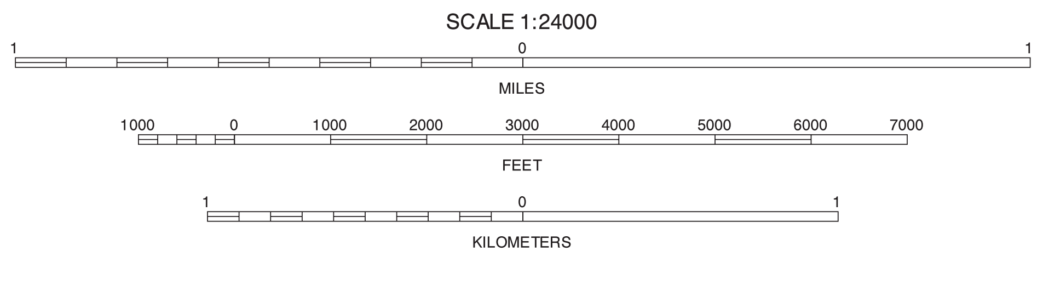
29

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION



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FEET
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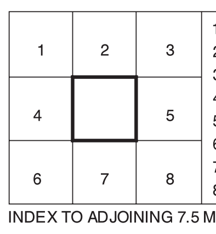
KILOMETERS



1 BLACK RIDGE CRATER
2 HALFWAY LAKE
3 LAIDLAW LAKE
4 SENTER
5 COMMUNITY LAKE
6 KIMAMA BUTTE
7 KIMAMA
8 NORLAND

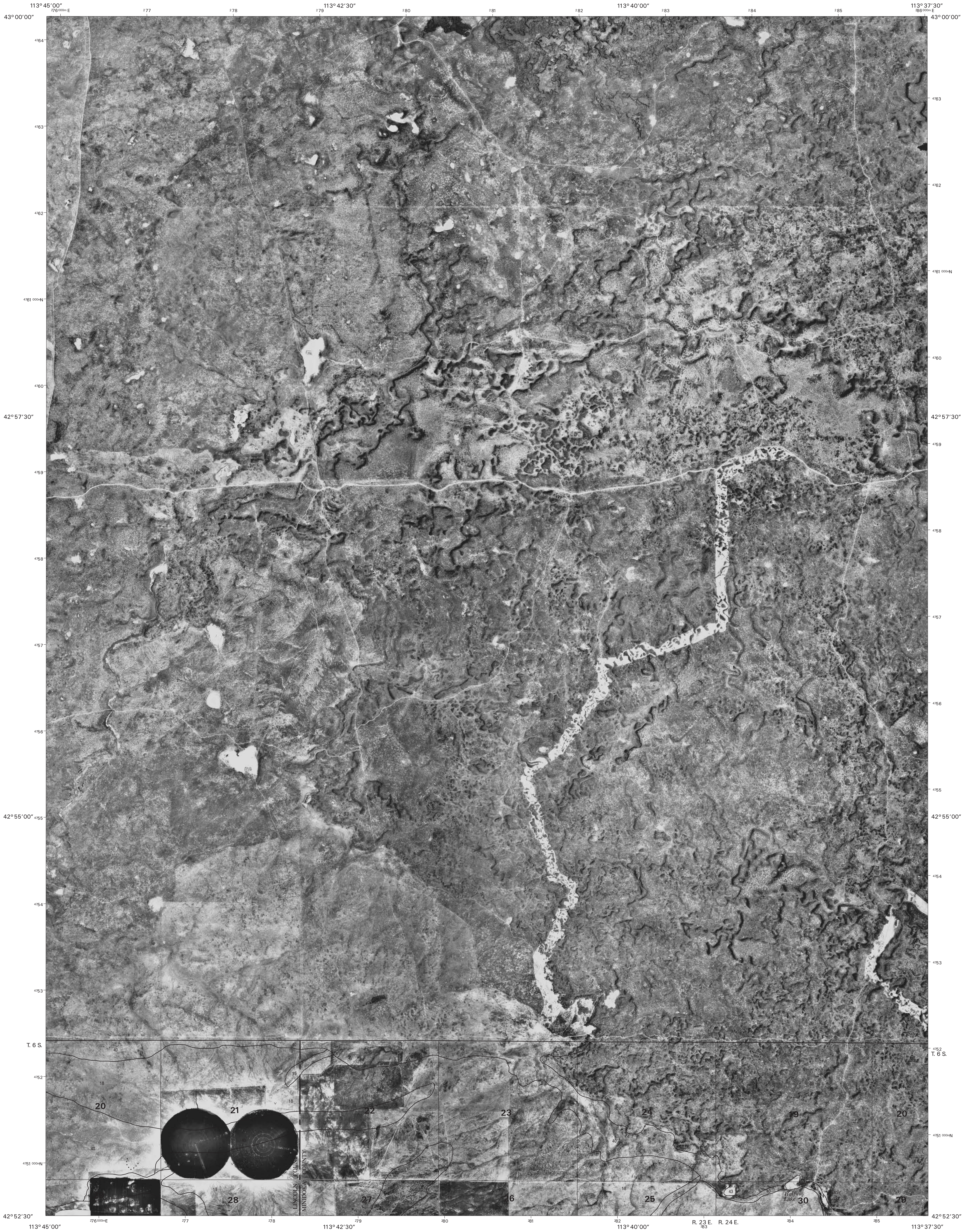
INDEX TO ADJOINING 7.5 MAPS

SHALE BUTTE, IDAHO

7.5 MINUTE SERIES
SHEET NUMBER 1 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
COMMUNITY LAKE QUADRANGLE
SHEET NUMBER 2 OF 19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286 000m E
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4761 000m N
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4751 000m N
T. 6 S.
R. 23 E.
R. 24 E.
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19
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28
27
26
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30
29
LINCOLN COUNTY
MINIDOKA COUNTY
Halfway Lake
Little Lake
18
43
40
26
38

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH
QUADRANGLE LOCATION

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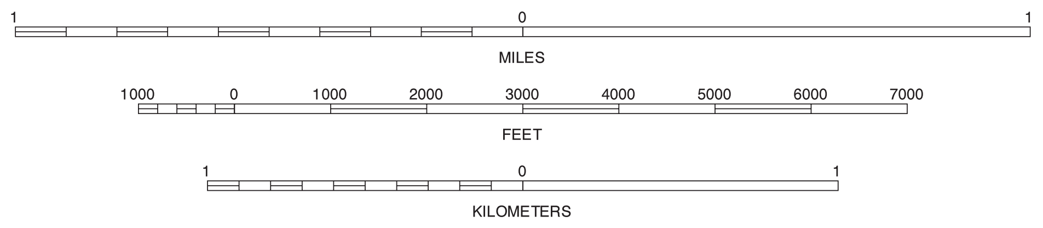
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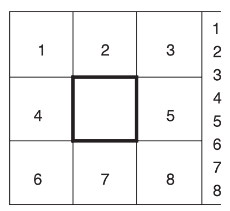

1 HALFWAY LAKE
2 LAIDLAW LAKE
3 BOTTLENECK LAKE
4 SHALE BUTTE
5 LARKSPUR PARK
6 KIMAMA
7 NORLAND
8 MAX

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COMMUNITY LAKE, IDAHO
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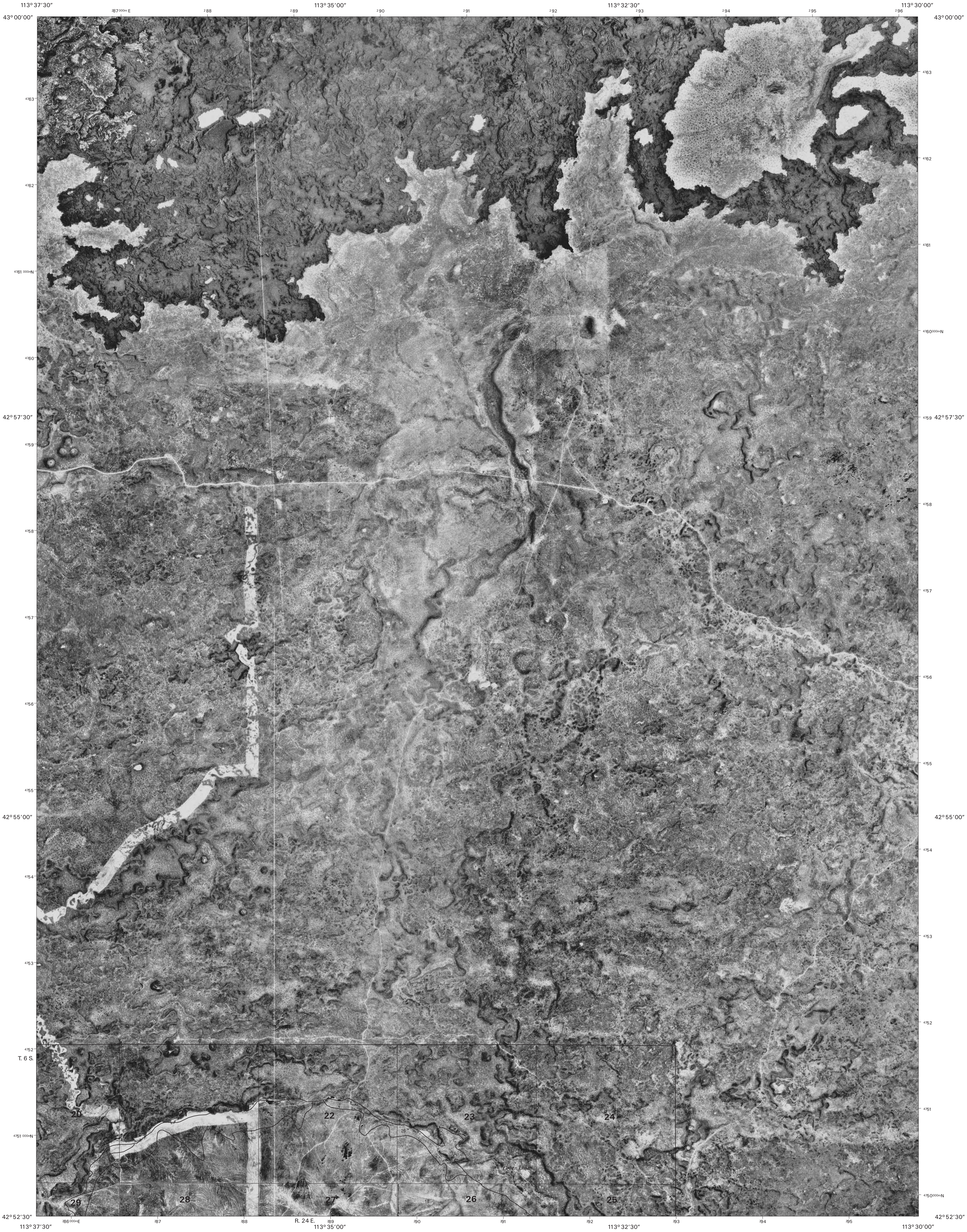
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
LARKSPUR PARK QUADRANGLE
SHEET NUMBER 3 OF 19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4751 000m N
4750 000m N
T. 6 S.
R. 24 E.
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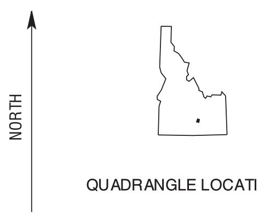
18

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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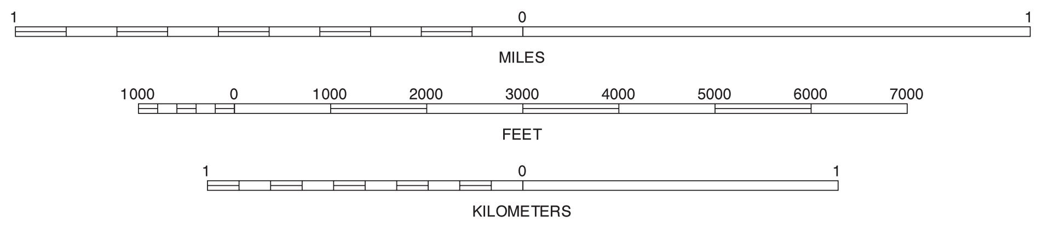
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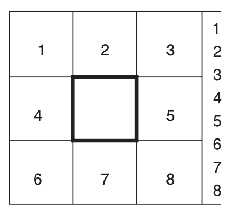

1 LAIDLAW LAKE
2 BOTTLENECK LAKE
3 BEAR PARK SW
4 COMMUNITY LAKE
5 BRIGHAM POINT
6 NORLAND
7 MAX
8 MINIDOKA

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LARKSPUR PARK, IDAHO

7.5 MINUTE SERIES
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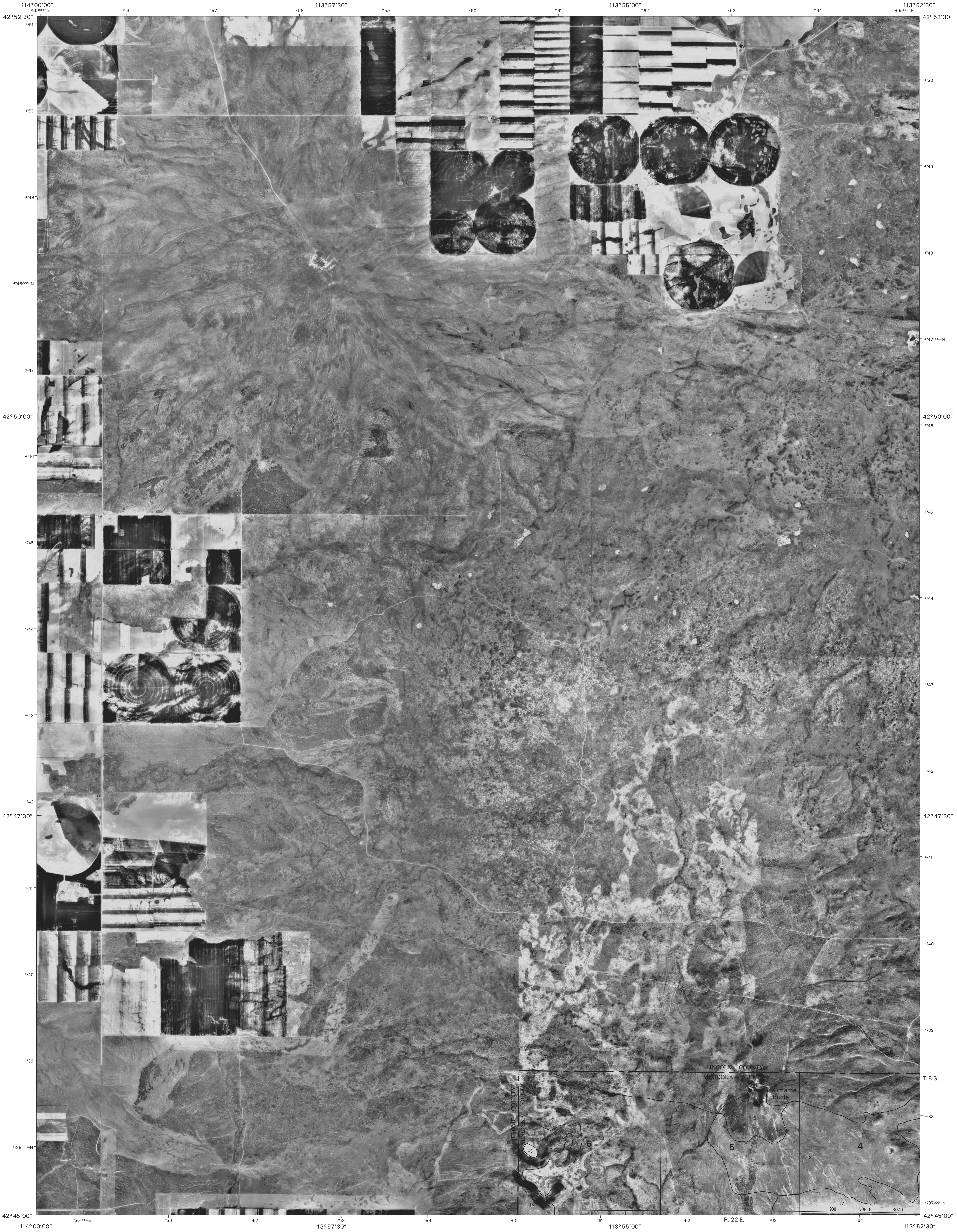
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
KIMAMA BUTTE QUADRANGLE
SHEET NUMBER 4 OF 19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4738 000mN
4737 000mN
LINCOLN COUNTY
MINIDOKA COUNTY
Kimama Butte
T. 8 S.
R. 22 E.
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43
27
900 NORTH ROAD

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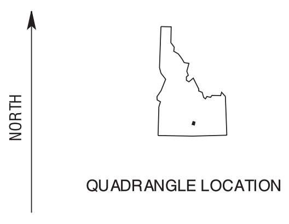
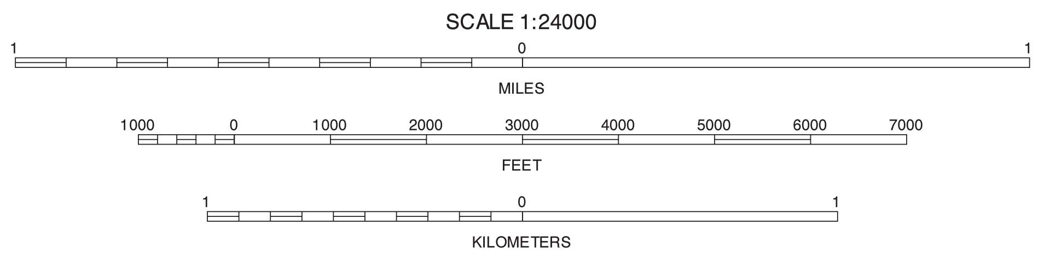


QUADRANGLE LOCATION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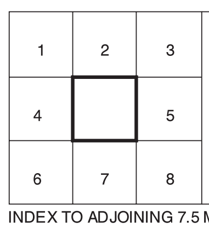

1 OWINZA
2 SENTER
3 SHALE BUTTE
4 OWINZA BUTTE
5 KIMAMA
6 EDEN NE
7 BURLEY NW
8 BURLEY NE

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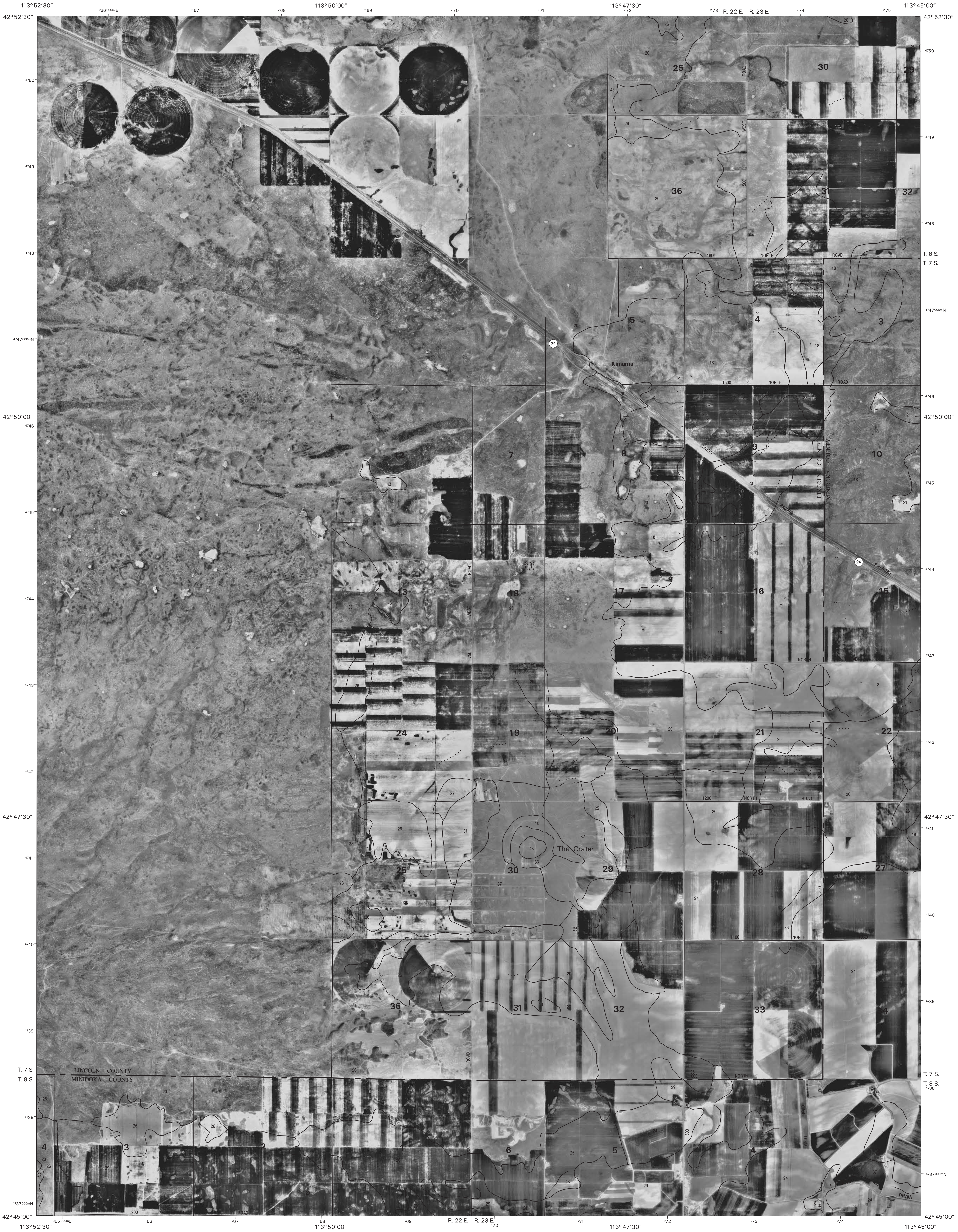
KIMAMA BUTTE, IDAHO
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
KIMAMA QUADRANGLE
SHEET NUMBER 5 OF 19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T. 7 S.
T. 8 S.
Kimama
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The Crater
LINCOLN COUNTY
MINIDOKA COUNTY
NORTH ROAD
DRAIN
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QUADRANGLE LOCATION

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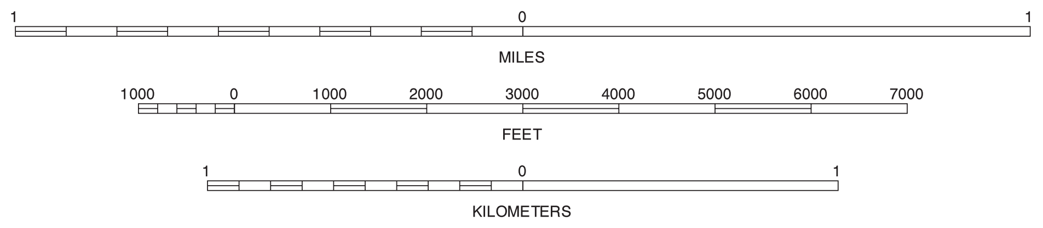
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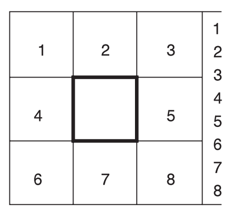

1 SENTER
2 SHALE BUTTE
3 COMMUNITY LAKE
4 KIMAMA BUTTE
5 NORLAND
6 BURLEY NW
7 BURLEY NE
8 RUPERT NW

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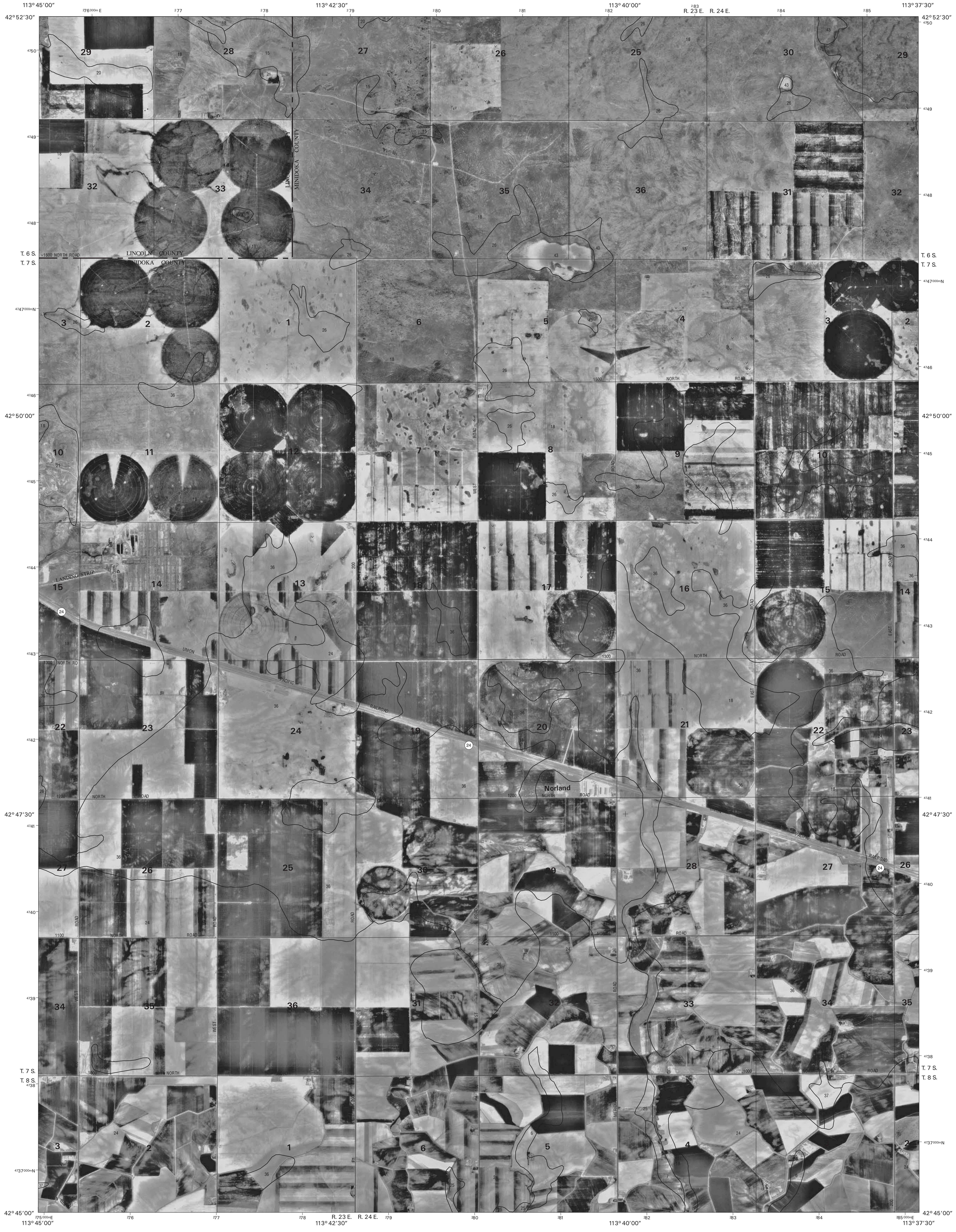
KIMAMA, IDAHO
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
NORLAND QUADRANGLE
SHEET NUMBER 6 OF 19



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R. 24 E.
T. 6 S.
T. 7 S.
T. 8 S.
LINCOLN COUNTY
MINIDOKA COUNTY
LANDING STRIP
UNION PACIFIC RAILROAD
Norland
NORTH ROAD
WEST ROAD
EAST ROAD
24

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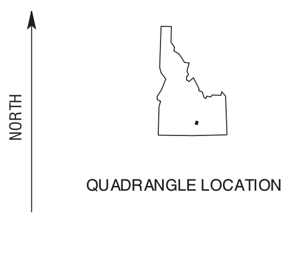
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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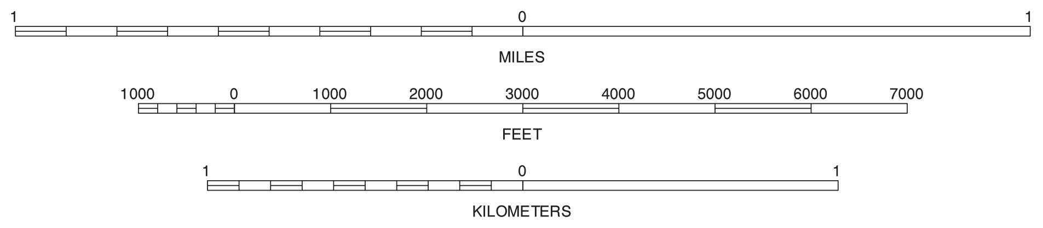

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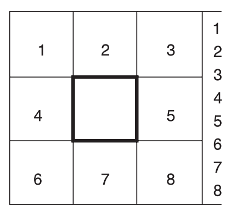

1 SHALE BUTTE
2 COMMUNITY LAKE
3 LARKSPUR PARK
4 KIMAMA
5 MAX
6 BURLEY NE
7 RUPERT NW
8 ACEQUIA

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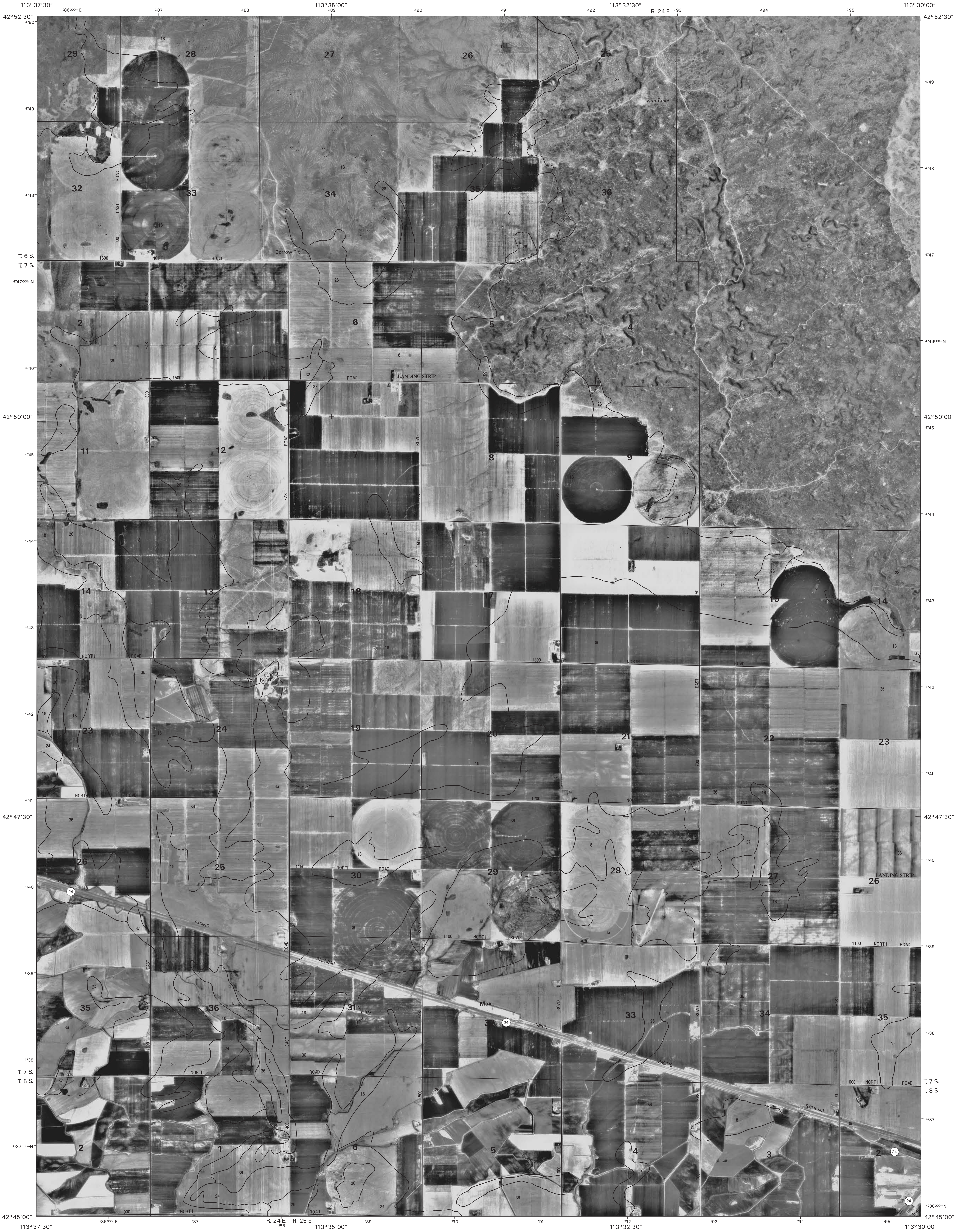
NORLAND, IDAHO
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
MAX QUADRANGLE
SHEET NUMBER 7 OF 19



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3
Run Lake
Borrow Pit
LANDING STRIP
Max
EAST
NORTH
ROAD
PACIFIC
RAILROAD
UNION
UPRR
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113° 37′30″
113° 35′00″
113° 32′30″
113° 30′00″

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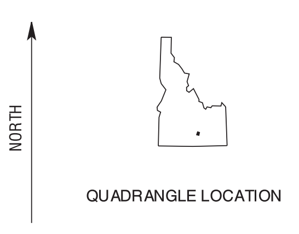
North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000 meter tics: Universal Transverse Mercator, zone 12.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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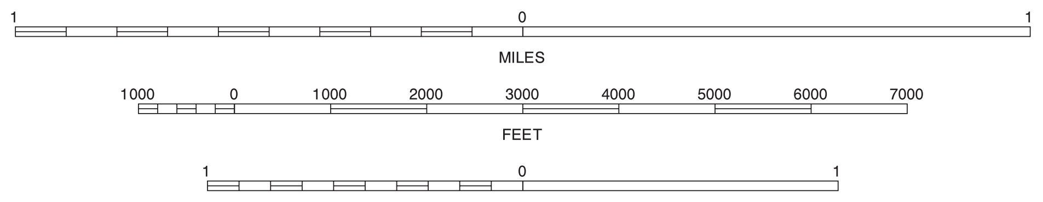

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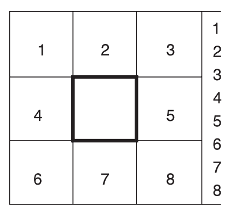


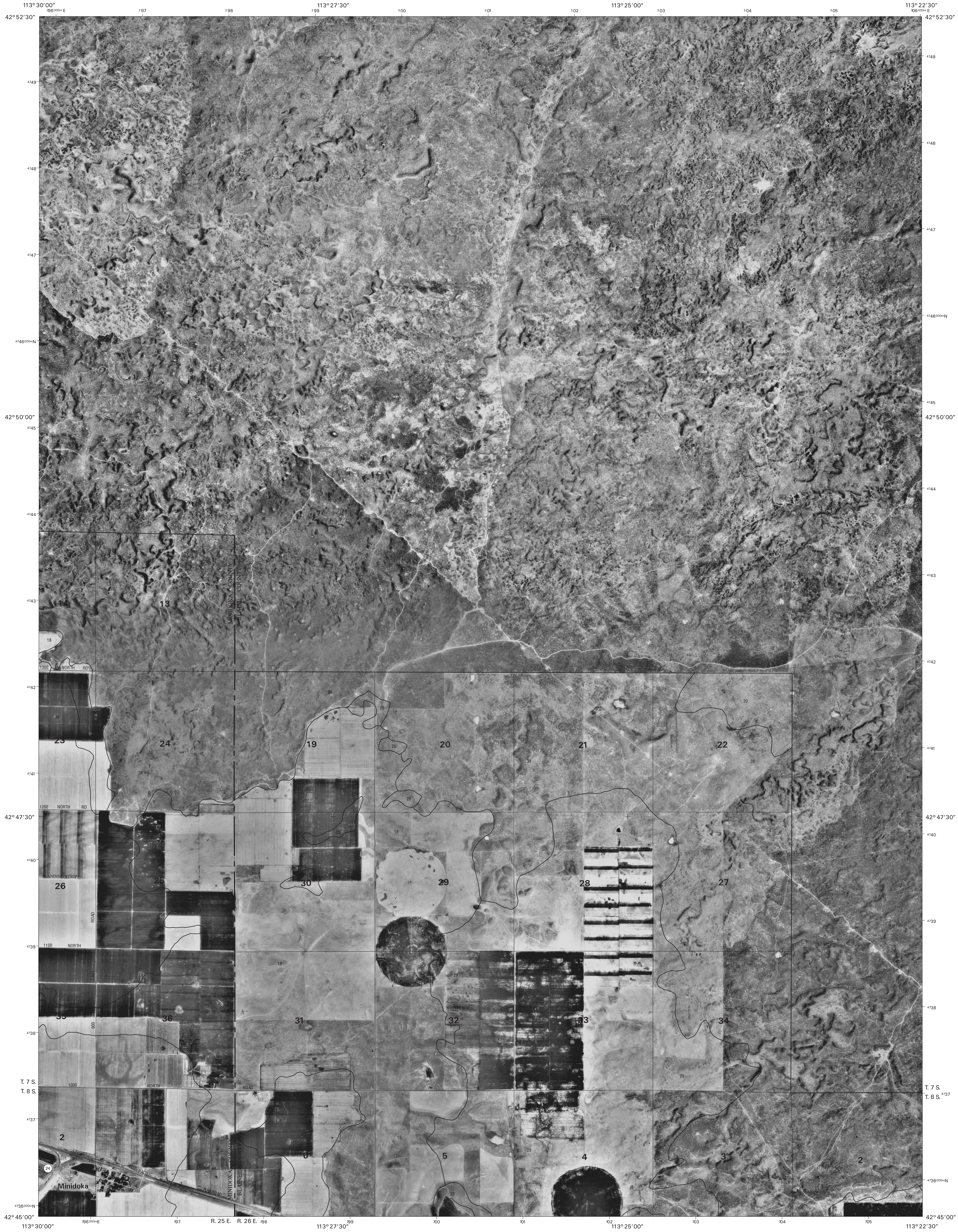
1 COMMUNITY LAKE
2 LARKSPUR PARK
3 BRIGHAM POINT
4 NORLAND
5 MINIDOKA
6 RUPERT NW
7 ACEQUIA
8 LAKE WALCOTT WEST

INDEX TO ADJOINING 7.5 MAPS

MAX, IDAHO
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
MINIDOKA QUADRANGLE
SHEET NUMBER 8 OF 19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297
298
299
300
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302
303
304
305
306000mE
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4747
4746000mN
4745
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4743
4742
4741
4740
4739
4738
4737
4736000mN
MINIDOKA COUNTY
BLAINE COUNTY
1300 NORTH RD
1200 NORTH RD
1100 NORTH
1000 NORTH ROAD
900
ROAD
LANDING STRIP
RAILROAD
PACIFIC
24
Minidoka
T. 7 S.
T. 8 S.
R. 25 E.
R. 26 E.
13
14
18
19
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22
23
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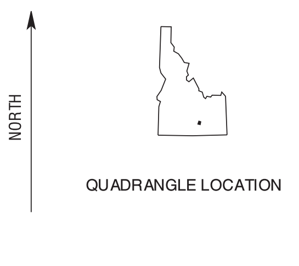
31
32
33
34
35
36
2
3
4
5
6

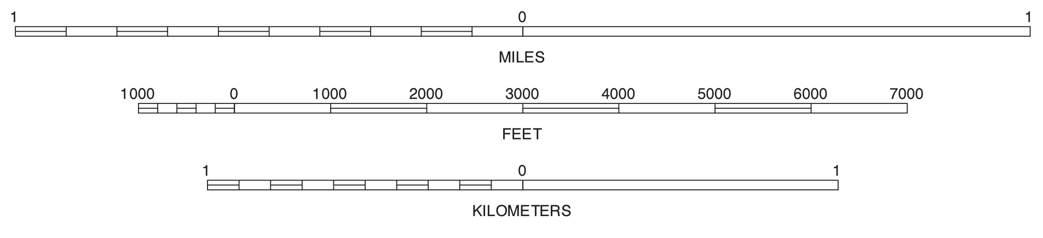
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000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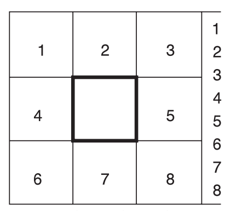

1 LARKSPUR PARK
2 BRIGHAM POINT
3 BEAR TRAP CAVE
4 MAX
5 SCHODDE WELL
6 ACEQUIA
7 LAKE WALCOTT WEST
8 LAKE WALCOTT EAST

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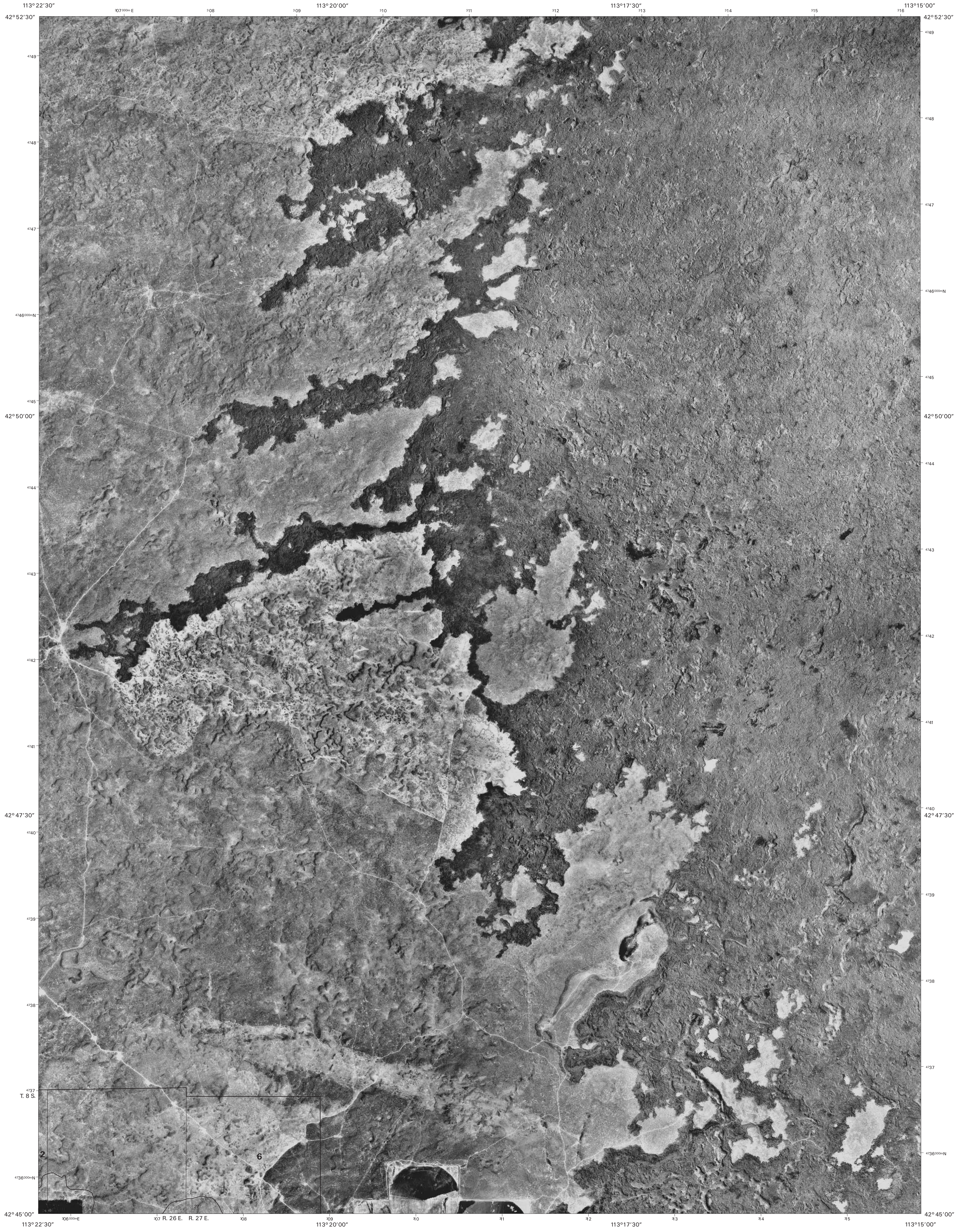
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 19

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
SCHODDE WELL QUADRANGLE
SHEET NUMBER 9 OF 19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4748
4747
4746000mN
4745
4744
4743
4742
4741
4740
4739
4738
4737
4736000mN
T. 8 S.
2
1
6
29
38
306000mE
307
R. 26 E.
R. 27 E.
308
309
310
311
312
313
314
315

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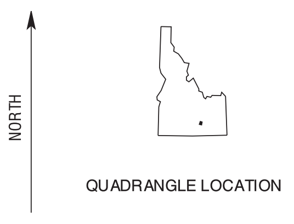
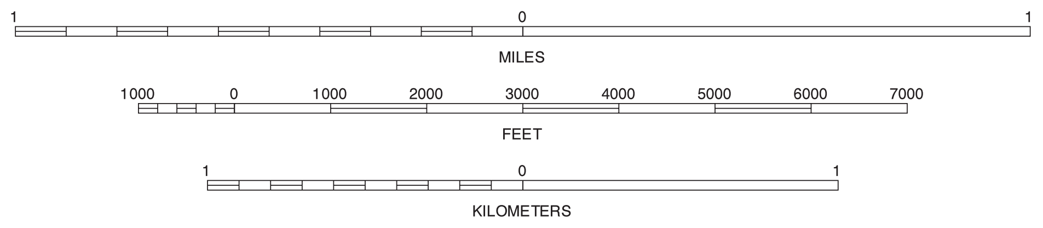
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000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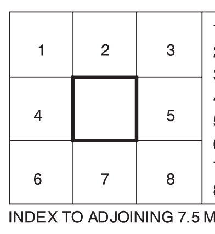

1 BRIGHAM POINT
2 BEAR TRAP CAVE
3 PILLAR BUTTE
4 MINIDOKA
5 RATTLESNAKE BUTTE
6 LAKE WALCOTT WEST
7 LAKE WALCOTT EAST
8 GIFFORD SPRING

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SCHODDE WELL, IDAHO

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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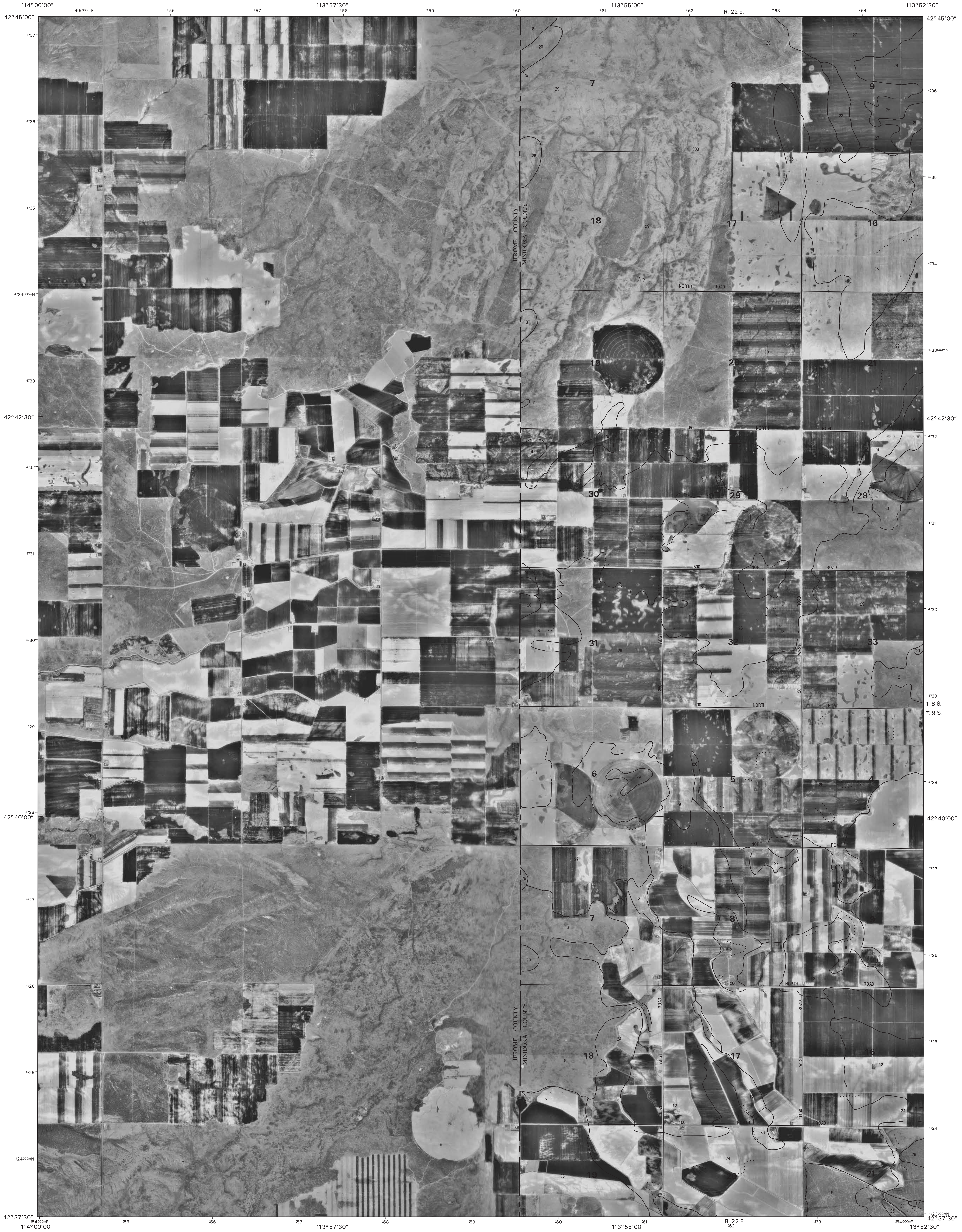
MINIDOKA AREA, IDAHO
BURLEY NW QUADRANGLE
SHEET NUMBER 10 OF 19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257
258
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264000mE
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4734000N
4733
4732
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4725
4724000N
4723000N
R. 22 E.
T. 8 S.
T. 9 S.
JEROME COUNTY
MINIDOKA COUNTY
NORTH ROAD
WEST ROAD
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20
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32
33
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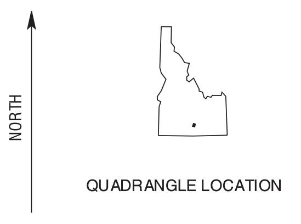
21

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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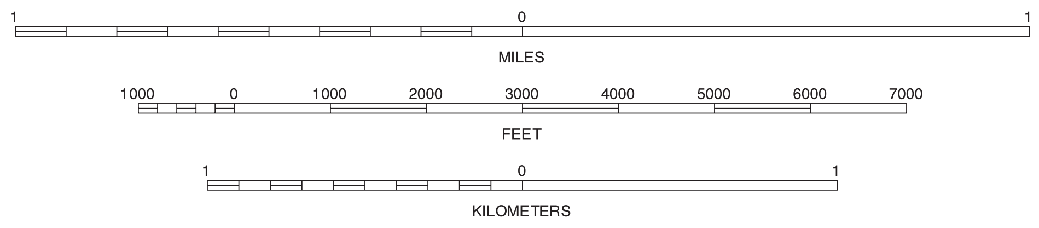
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7000
FEET
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KILOMETERS

1	2	3
4		5
6	7	8

1 OWINZA BUTTE
2 KIMAMA BUTTE
3 KIMAMA
4 EDEN NE
5 BURLEY NE
6 MILNER
7 BURLEY SW
8 BURLEY

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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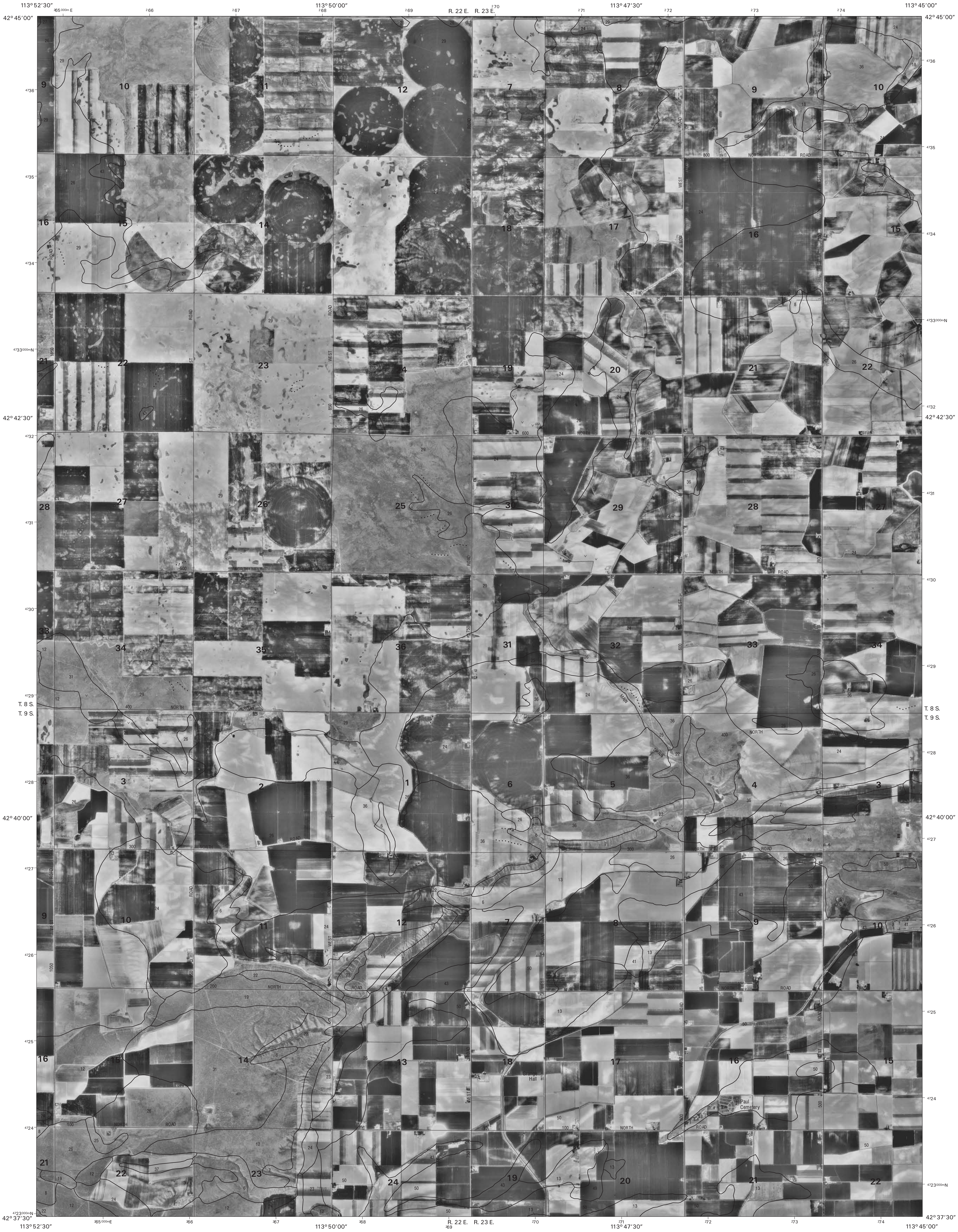
MINIDOKA AREA, IDAHO
BURLEY NE QUADRANGLE
SHEET NUMBER 11 OF 19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R. 23 E.
T. 8 S.
T. 9 S.
265000mE
266
267
268
269
270
271
272
273
274
4736
4735
4734
4733000mN
4732
4731
4730
4729
4728
4727
4726
4725
4724
4723000mN
NORTH
ROAD
WEST
Grange Hall
Paul Cemetery

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

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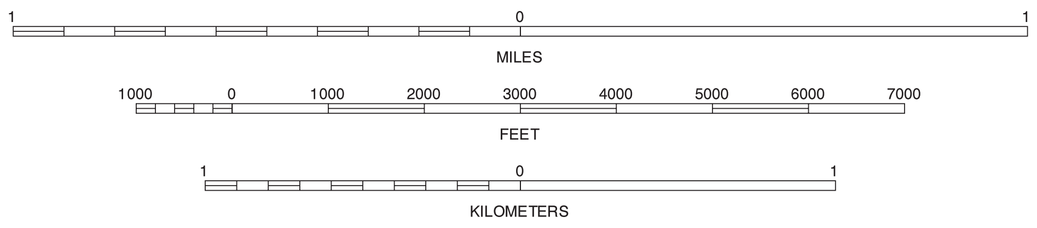
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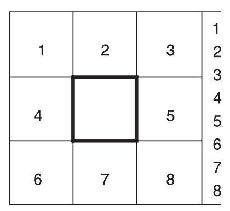

1 KIMAMA BUTTE
2 KIMAMA
3 NORLAND
4 BURLEY NW
5 RUPERT NW
6 BURLEY SW
7 BURLEY
8 RUPERT

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UNITED STATES
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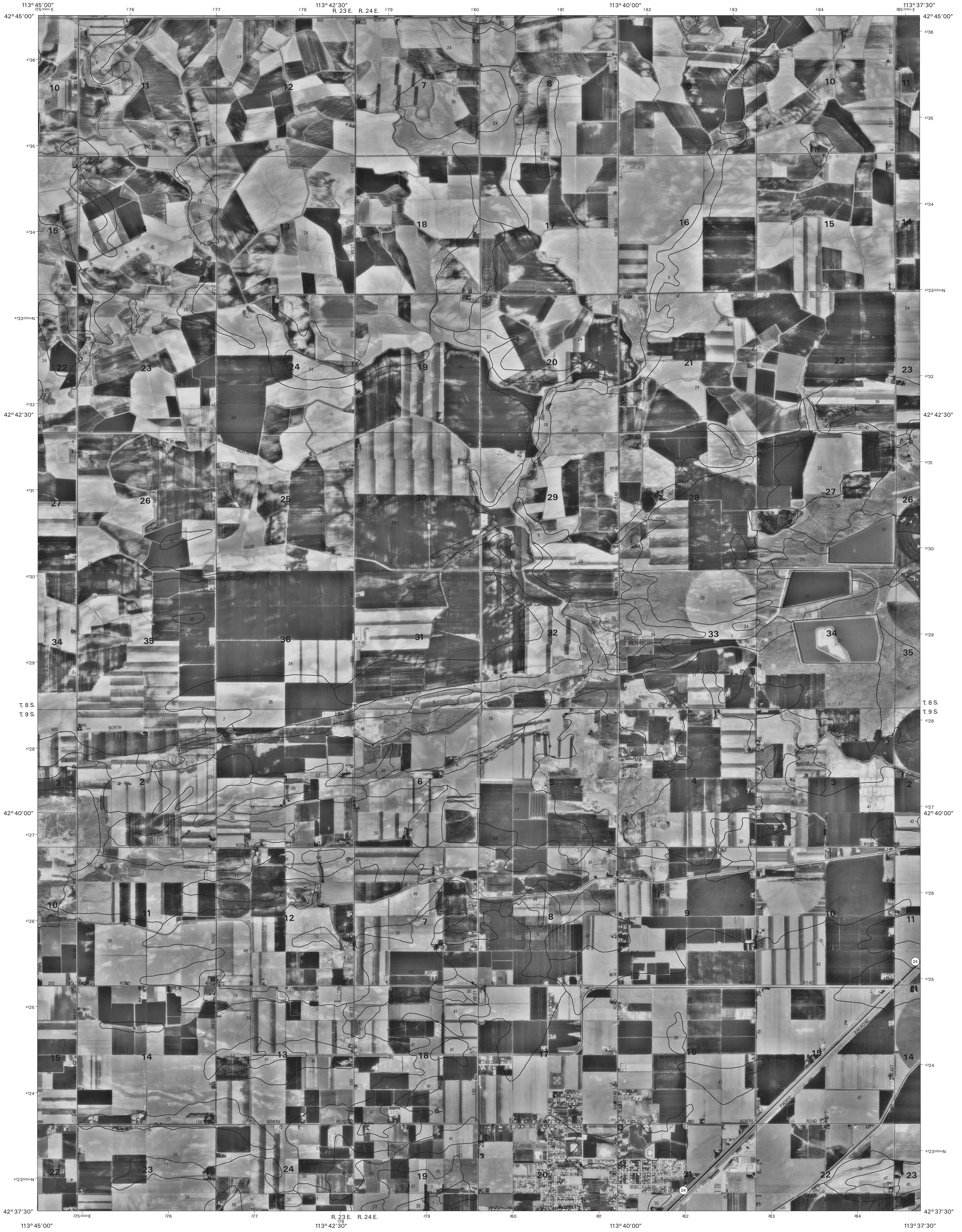
MINIDOKA AREA, IDAHO
RUPERT NW QUADRANGLE
SHEET NUMBER 12 OF 19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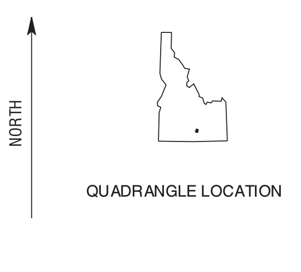
T. 8 S.
T. 9 S.
4723000mN
275000mE
NORTH
ROAD
WEST
EAST
MERIDIAN
UNION
PACIFIC
Rupert
24

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey from 1992 aerial photography. Cultural information was derived from U.S. Department of Interior, Geological Survey topographic maps.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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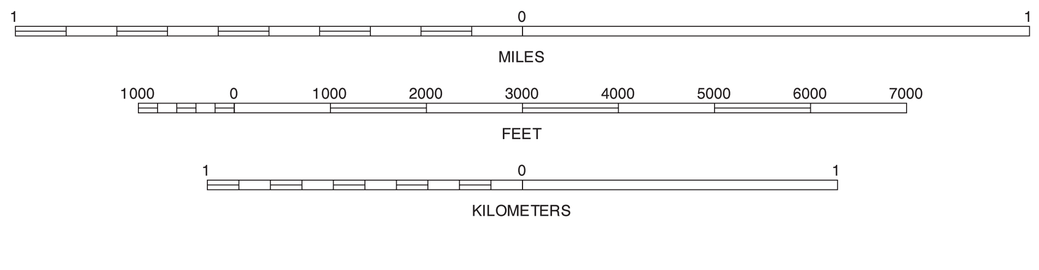
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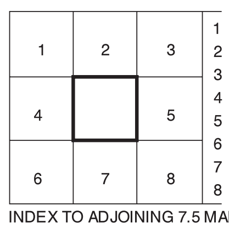

1 KIMAMA
2 NORLAND
3 MAX
4 BURLEY NE
5 ACEQUIA
6 BURLEY
7 RUPERT
8 RUPERT SE

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RUPERT NW, IDAHO
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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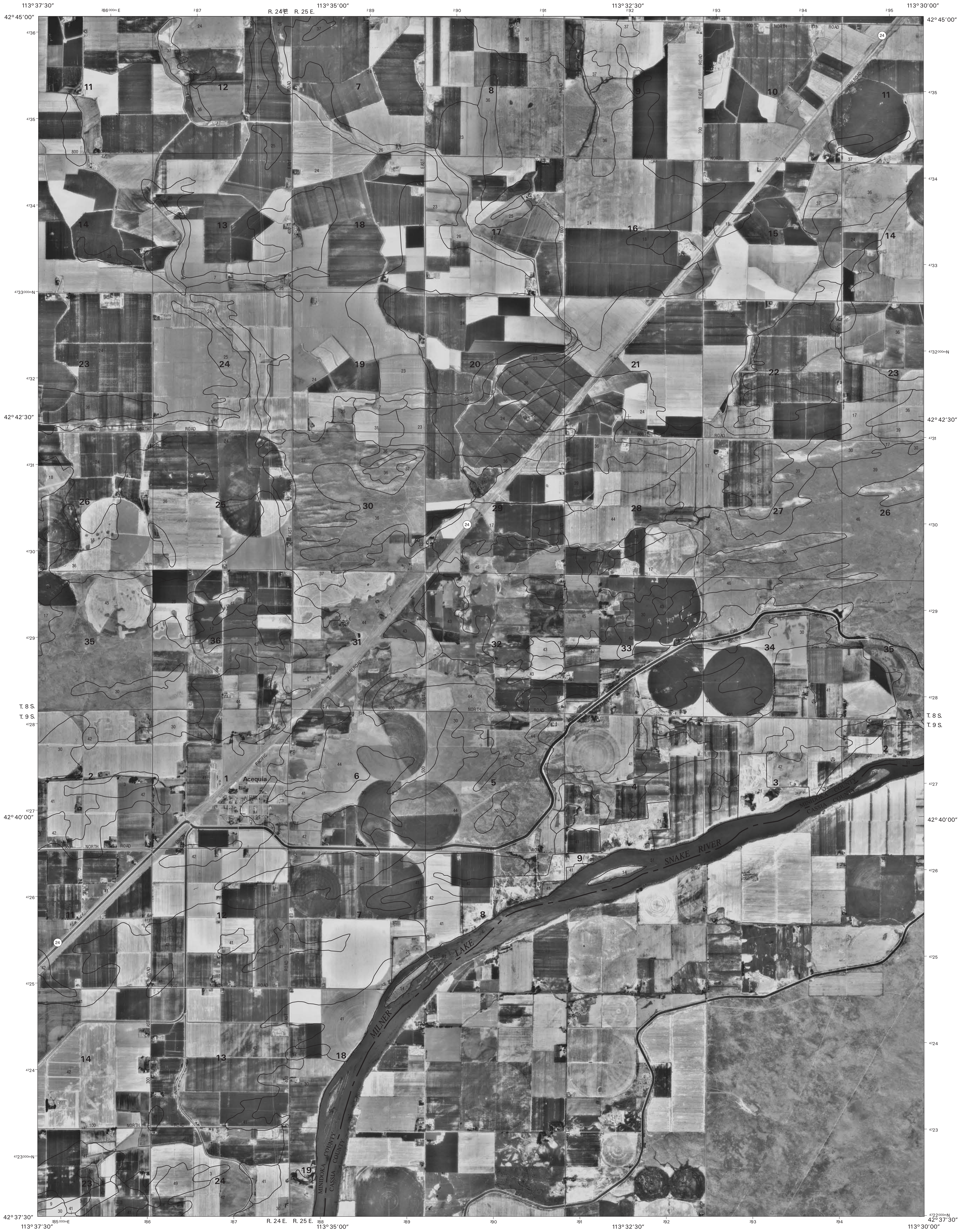
MINIDOKA AREA, IDAHO
ACEQUIA QUADRANGLE
SHEET NUMBER 13 OF 19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R. 24 E.
R. 25 E.
T. 8 S.
T. 9 S.
²86⁰⁰⁰m E
4733000m N
4732000m N
4722000m N
²85⁰⁰⁰m E
Acequia
SNAKE RIVER
MILNER LAKE
MINIDOKA COUNTY
CASSIA COUNTY
NORTH ROAD
EAST ROAD
24
11
12
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36
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32
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34
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6
5
4
3

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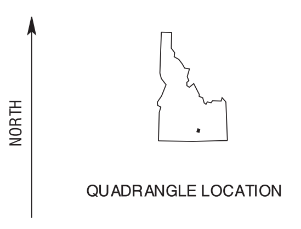
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

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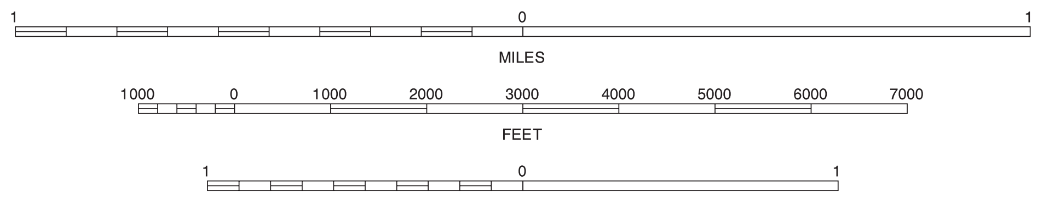
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7000
FEET
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0
1
KILOMETERS

1	2	3
4		5
6	7	8

1 NORLAND
2 MAX
3 MINIDOKA
4 RUPERT NW
5 LAKE WALCOTT WEST
6 RUPERT
7 RUPERT SE
8 LAKE WALCOTT SW

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ACEQUIA, IDAHO
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UNITED STATES
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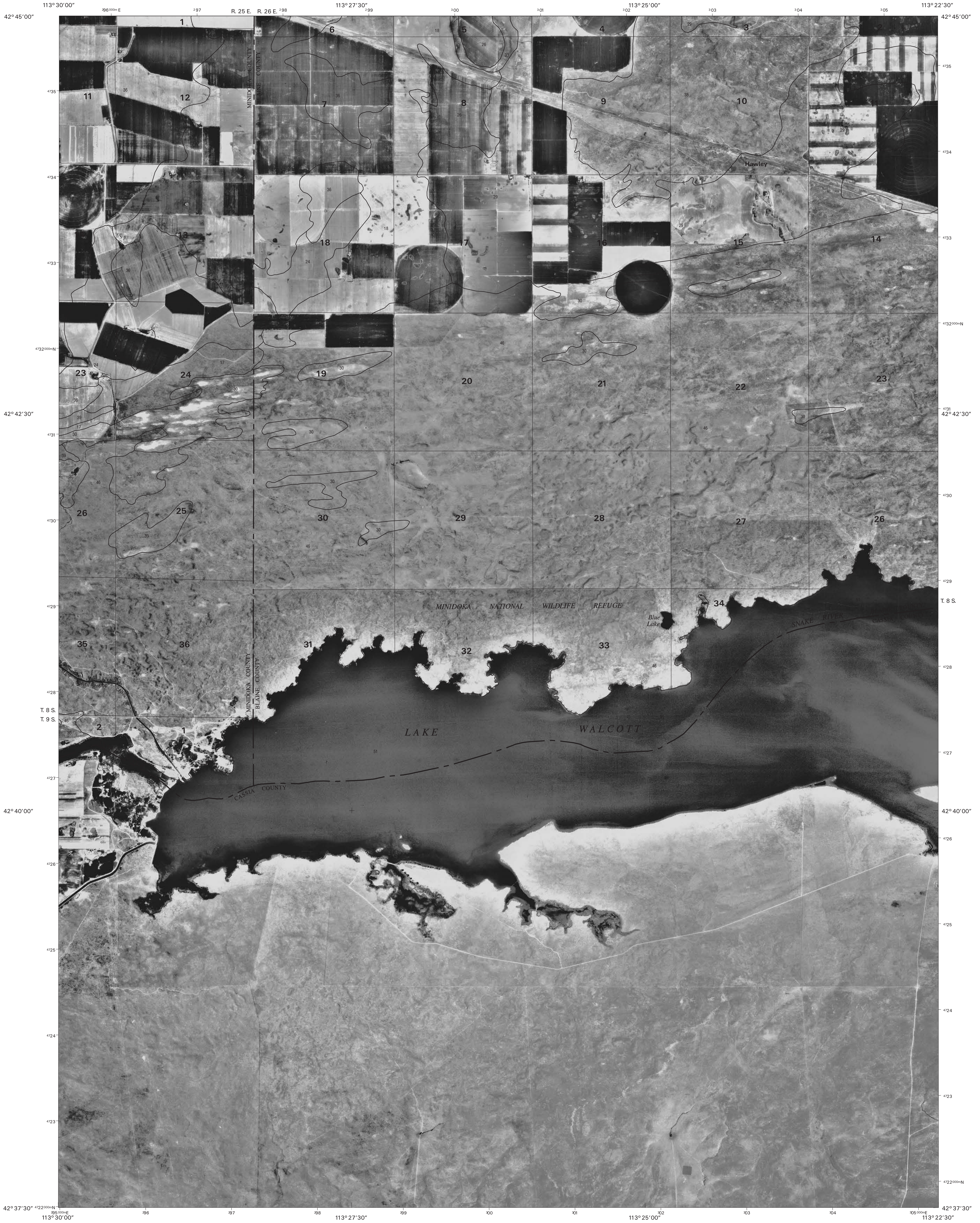
MINIDOKA AREA, IDAHO
LAKE WALCOTT WEST QUADRANGLE
SHEET NUMBER 14 OF 19



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R. 25 E.
R. 26 E.
T. 8 S.
T. 9 S.
MINIDOKA COUNTY
BLAINE COUNTY
CASSIA COUNTY
Hawley
MINIDOKA NATIONAL WILDLIFE REFUGE
Blue Lake
SNAKE RIVER
LAKE WALCOTT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
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36
296000m E
297
298
299
300
301
302
303
304
305
295000m E
305000m E
4735
4734
4733
4732000m N
4731
4730
4729
4728
4727
4726
4725
4724
4723
4722000m N

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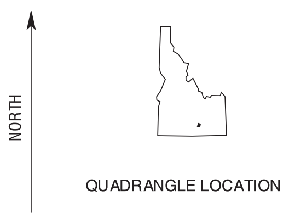
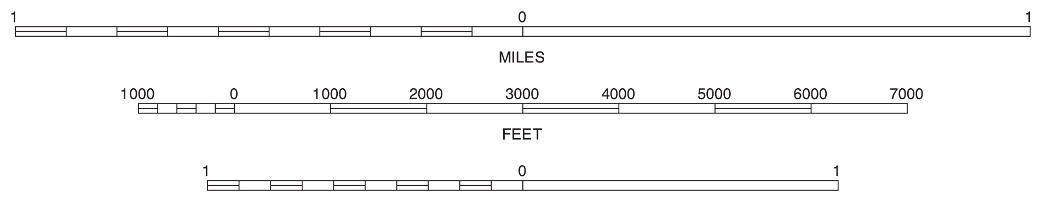
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



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MILES
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7000
FEET
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1
KILOMETERS

1	2	3
4		5
6	7	8

1 MAX
2 MINIDOKA
3 SCHODDE WELL
4 ACEQUIA
5 LAKE WALCOTT EAST
6 RUPERT SE
7 LAKE WALCOTT SW
8 LAKE WALCOTT SE

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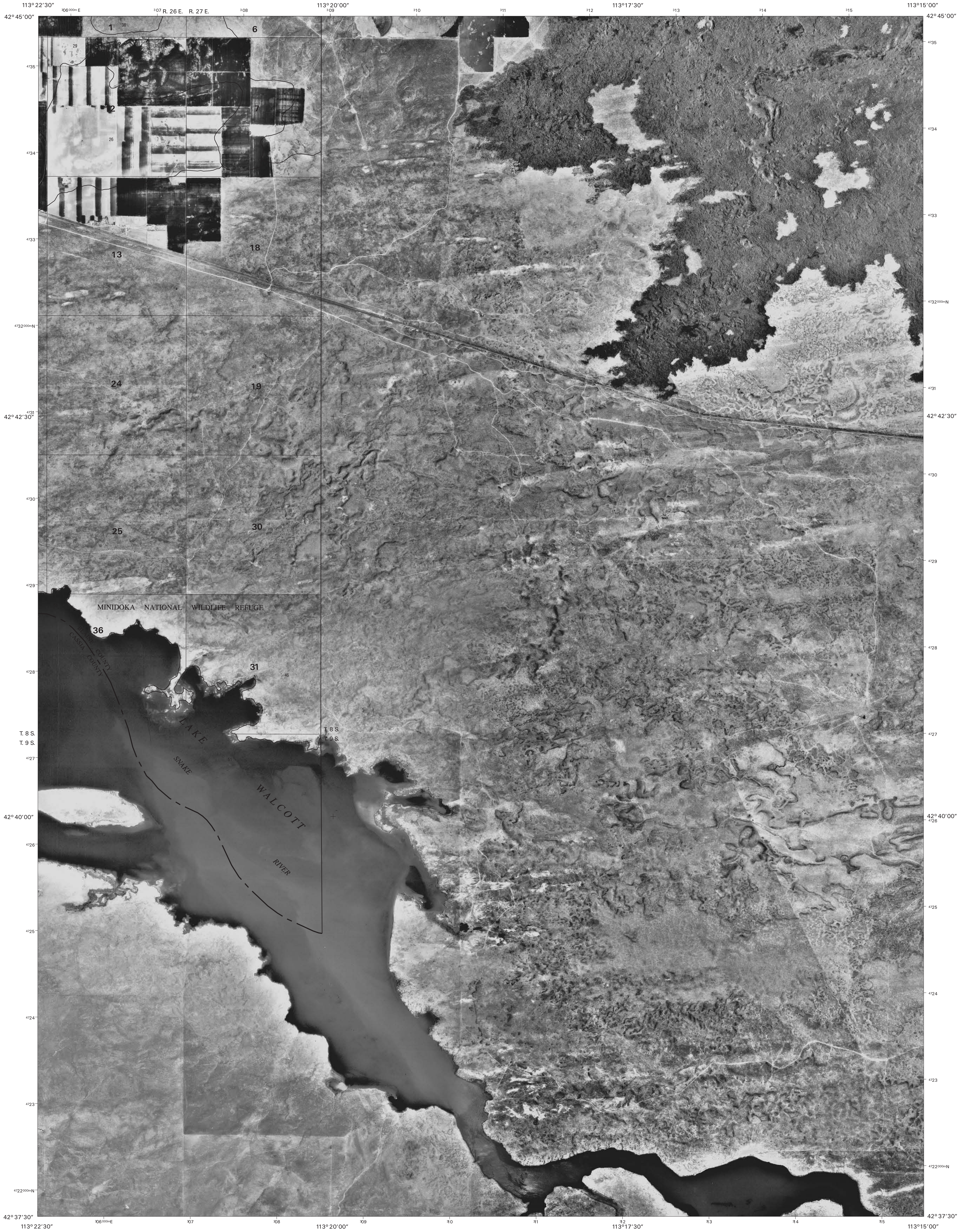
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
LAKE WALCOTT EAST QUADRANGLE
SHEET NUMBER 15 OF 19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113° 15′00″
42° 45′00″
42° 42′30″
42° 40′00″
42° 37′30″
4735
4734
4733
4732000m N
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4727
4726
4725
4724
4723
4722000m N
1
6
2
7
13
18
24
19
25
30
36
31
MINIDOKA NATIONAL WILDLIFE REFUGE
CASSIA COUNTY
LAKE WALCOTT
SNAKE RIVER
T. 8 S.
T. 9 S.

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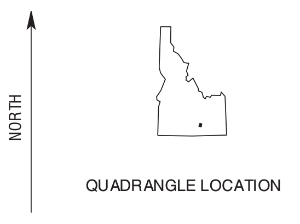
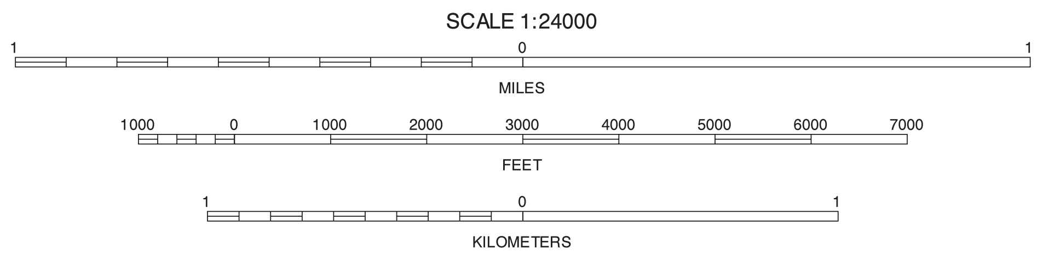
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.


NORTH
QUADRANGLE LOCATION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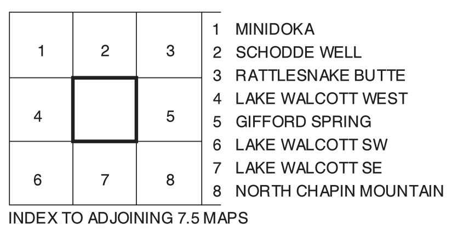

1 MINIDOKA
2 SCHODDE WELL
3 RATTLESNAKE BUTTE
4 LAKE WALCOTT WEST
5 GIFFORD SPRING
6 LAKE WALCOTT SW
7 LAKE WALCOTT SE
8 NORTH CHAPIN MOUNTAIN

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UNITED STATES
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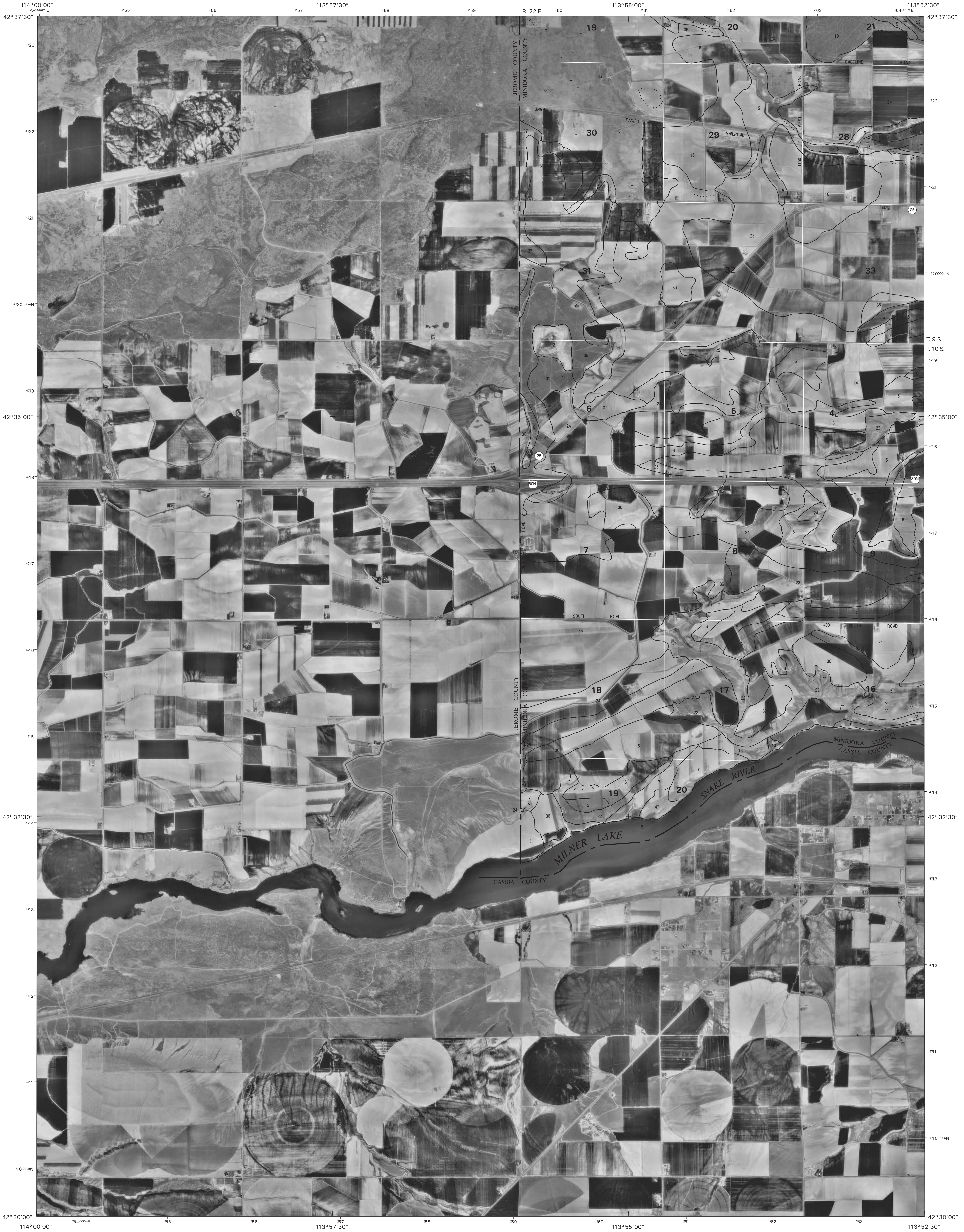
MINIDOKA AREA, IDAHO
BURLEY SW QUADRANGLE
SHEET NUMBER 16 OF 19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113° 55′00″
113° 52′30″
42° 37′30″
42° 35′00″
42° 32′30″
42° 30′00″
R. 22 E.
T. 9 S.
T. 10 S.
JEROME COUNTY
MINIDOKA COUNTY
CASSIA COUNTY
UNION PACIFIC RAILROAD
SOUTH ROAD
BASELINE ROAD
400 ROAD
SNAKE RIVER
MILNER LAKE
25
80N
19
20
21
30
29
28
31
32
33
6
5
4
7
8
9
18
17
16
19
20

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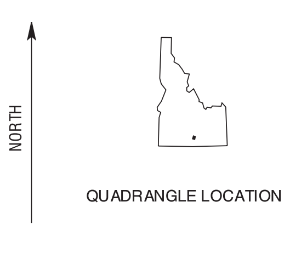
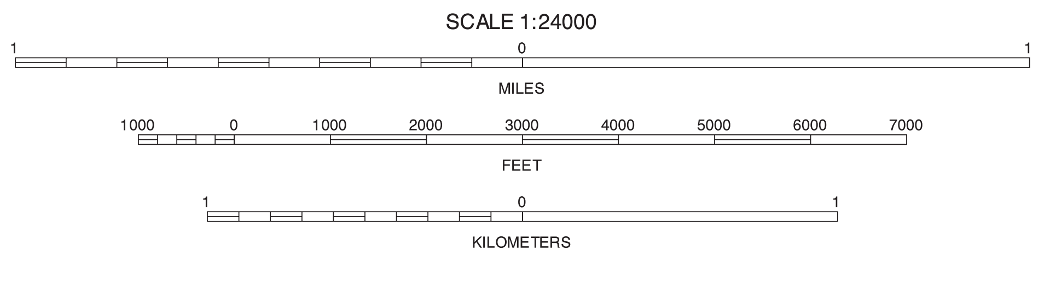
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.


NORTH
QUADRANGLE LOCATION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FEET
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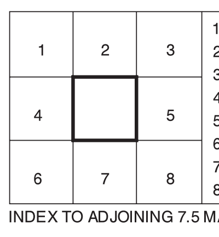
KILOMETERS



1 EDEN NE
2 BURLEY NW
3 BURLEY NE
4 MILNER
5 BURLEY
6 MILNER BUTTE
7 BURLEY BUTTE
8 KENYON

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BURLEY SW, IDAHO
7.5 MINUTE SERIES
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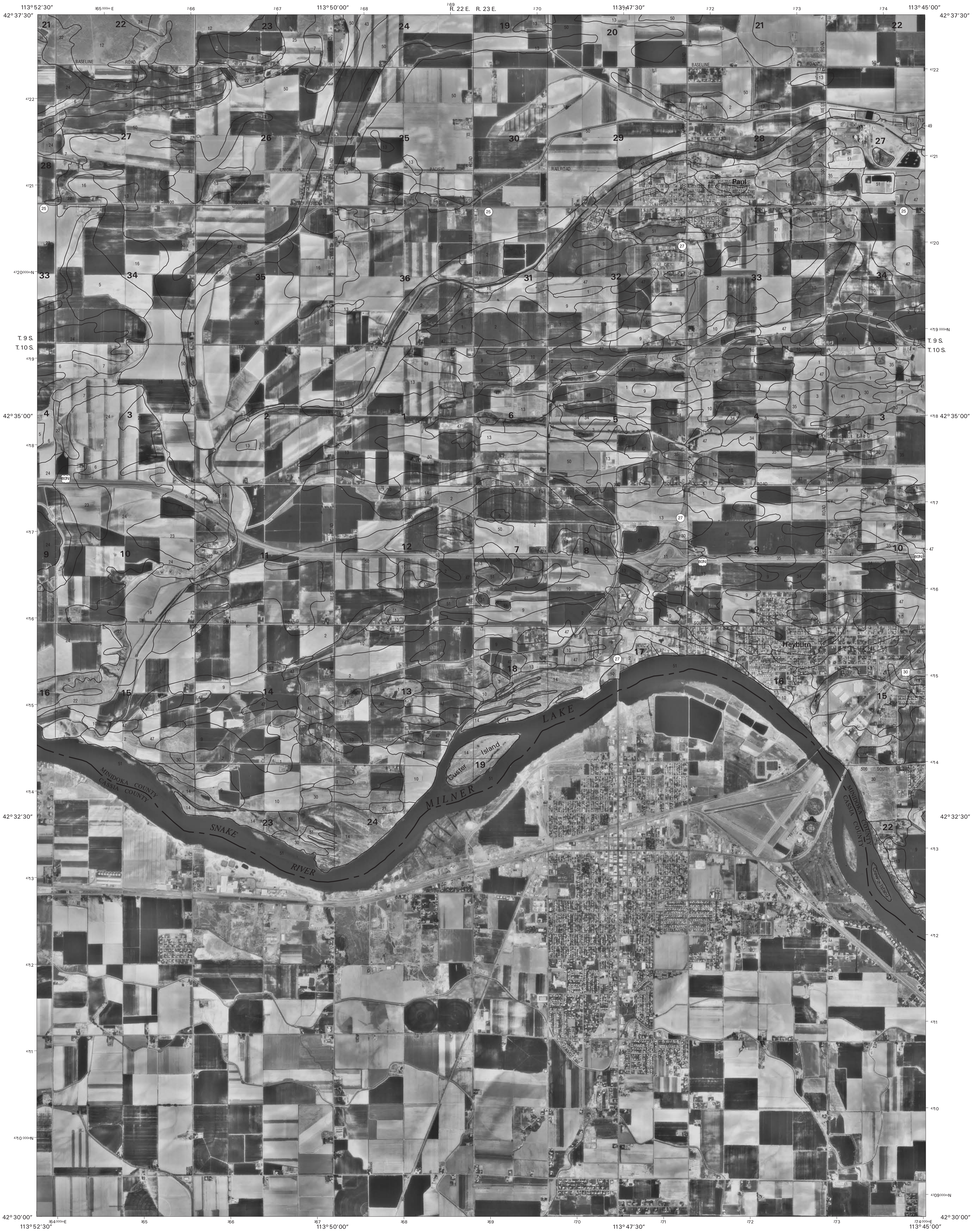
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
BURLEY QUADRANGLE
SHEET NUMBER 17 OF 19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42° 32′30″
42° 30′00″
R. 22 E.
R. 23 E.
T. 9 S.
T. 10 S.
BASELINE ROAD
RAILROAD
Paul
Heyburn
Custer Island
MILNER LAKE
SNAKE RIVER
MINIDOKA COUNTY
CASSIA COUNTY
25
27
30
80N
264000mE
4709000mN
274000mE

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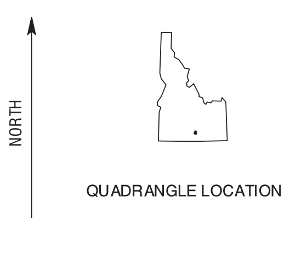
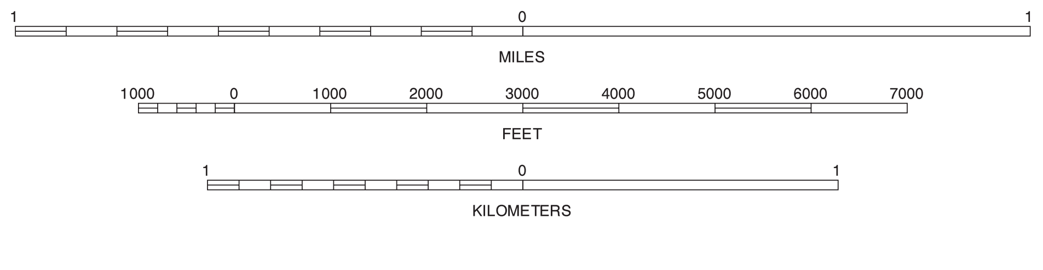
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000 meter tics: Universal Transverse Mercator, zone 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000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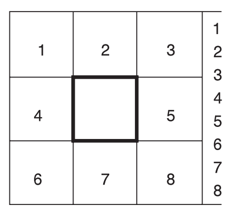
KILOMETERS



1 BURLEY NW
2 BURLEY NE
3 RUPERT NW
4 BURLEY SW
5 RUPERT
6 BURLEY BUTTE
7 KENYON
8 VIEW

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BURLEY, IDAHO

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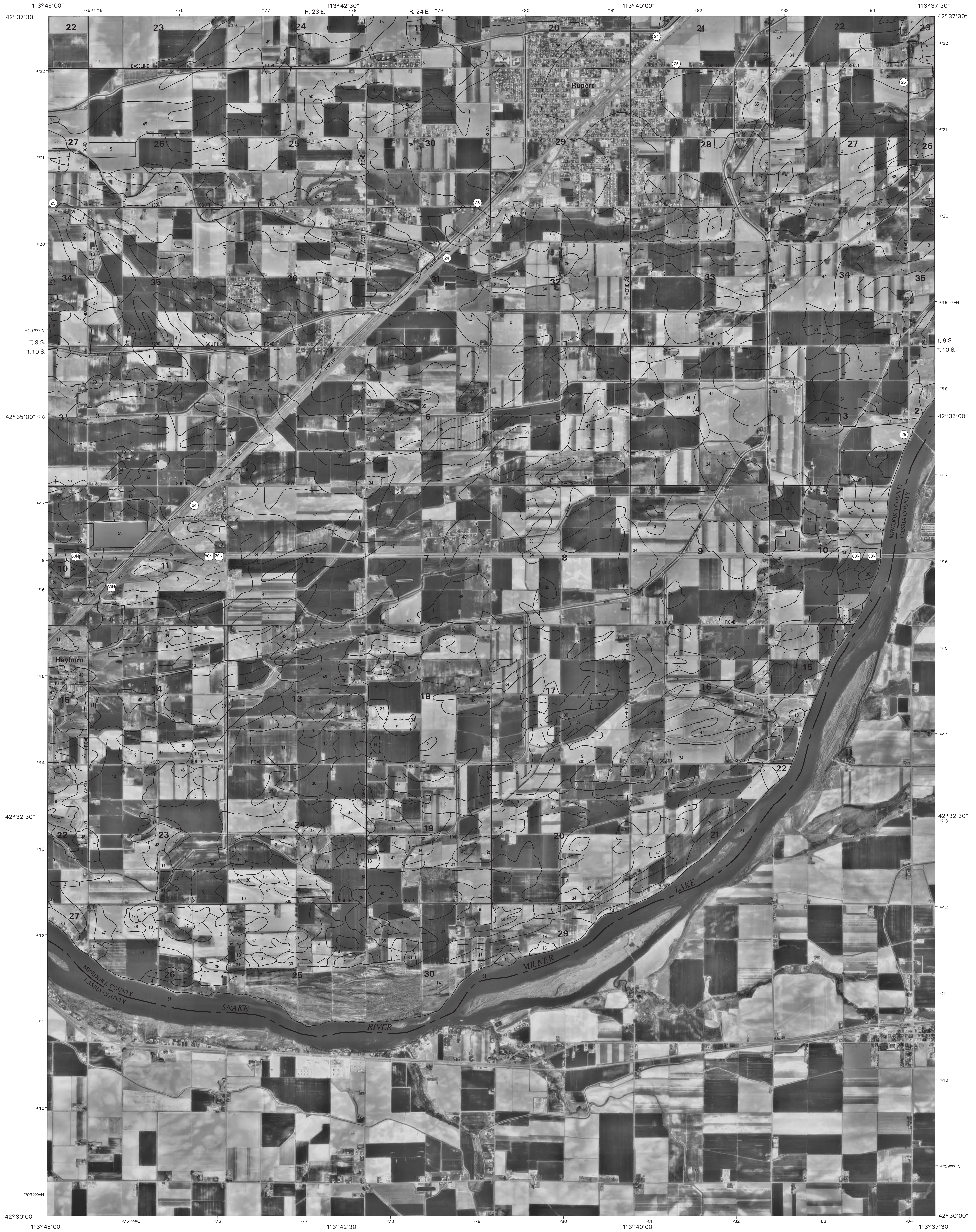
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

MINIDOKA AREA, IDAHO
RUPERT QUADRANGLE
SHEET NUMBER 18 OF 19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42° 30′00″
275 000m E
276
277
278
279
280
281
282
283
284
4722
4721
4720
4719 000m N
4718
4717
4716
4715
4714
4713
4712
4711
4710
4709 000m N
4708 000m N
R. 23 E.
R. 24 E.
T. 9 S.
T. 10 S.
Rupert
Heyburn
BASELINE
ROAD
SOUTH
WEST
MERIDIAN
MINIDOKA COUNTY
CASSIA COUNTY
SNAKE
RIVER
MILNER
LAKE
24
25
30N
80N
22
23
24
19
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21
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29

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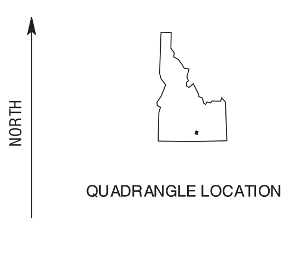
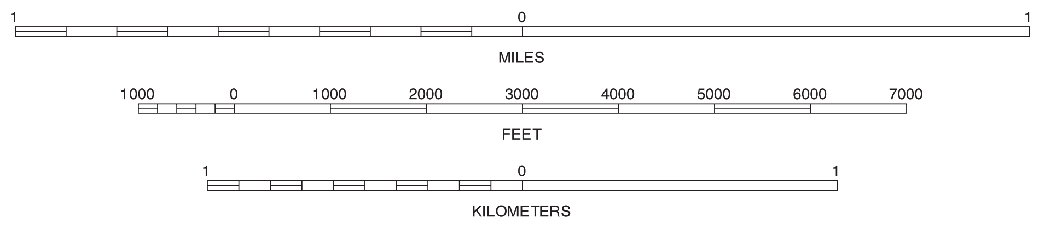

NORTH
QUADRANGLE LOCATION

SCALE 1:24000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FEET
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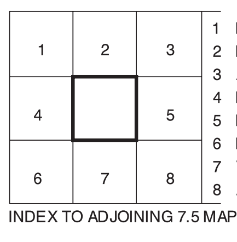
KILOMETERS



1 BURLEY NE
2 RUPERT NW
3 ACEQUIA
4 BURLEY
5 RUPERT SE
6 KENYON
7 VIEW
8 ALBION

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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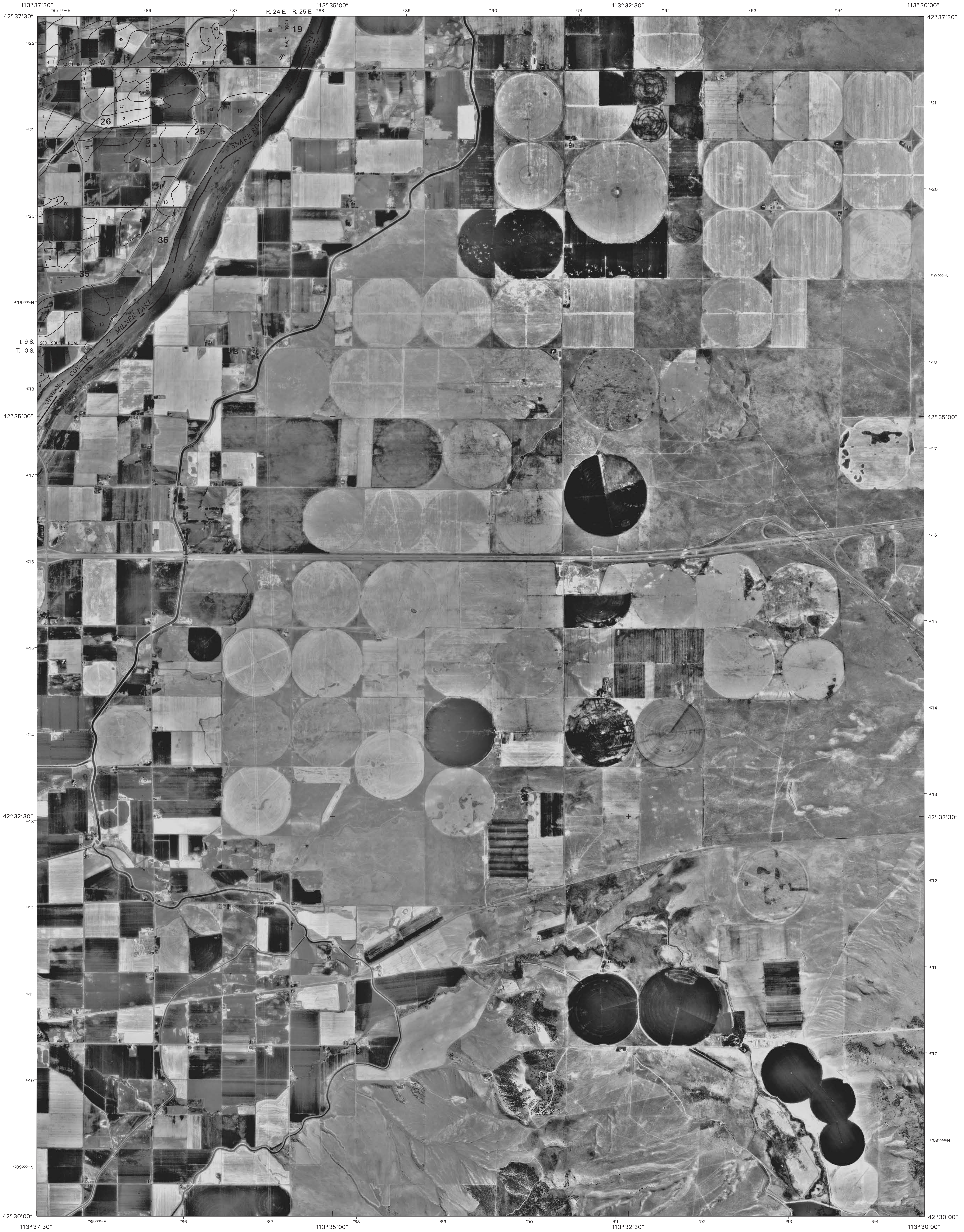
MINIDOKA AREA, IDAHO
RUPERT SE QUADRANGLE
SHEET NUMBER 19 OF 19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285 000m E
286
287
288
289
290
291
292
293
294
4722
4721
4720
4719 000m N
4718
4717
4716
4715
4714
4713
4712
4711
4710
4709 000m N
R. 24 E.
R. 25 E.
T. 9 S.
T. 10 S.
19
26
25
36
35
BASELINE ROAD
400 EAST ROAD
200 SOUTH ROAD
SNAKE RIVER
MILNER LAKE
MINIDOKA COUNTY
CASSIA COUNTY

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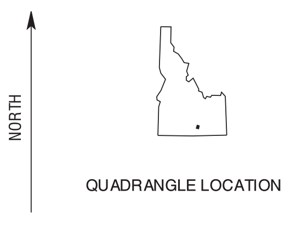
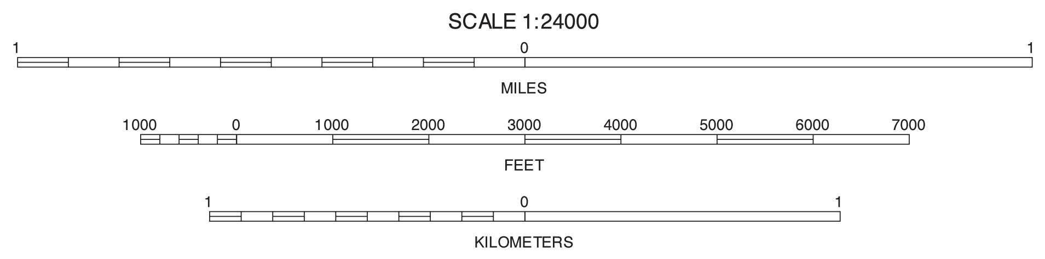

NORTH
QUADRANGLE LOCATION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3000
4000
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6000
7000
FEET
1
0
1
KILOMETERS

1	2	3
4		5
6	7	8

1 RUPERT NW
2 ACEQUIA
3 LAKE WALCOTT WEST
4 RUPERT
5 LAKE WALCOTT SW
6 VIEW
7 ALBION
8 IDAHOME

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